Fort Campbell Policy for Storm Water Erosion and Sediment Control at Construction Projects

Garrison Commander
Fort Campbell, Kentucky

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1. Introduction

The Fort Campbell military installation encompasses over 105,000 acres in Tennessee and Kentucky. The drainage area supports 14 USGS name-recognized creeks within three separate watersheds. Two of these watersheds exit the base to the north (Skinner Creek) and west (Casey Creek) and ultimately form part of the Lower Cumberland River Watershed. The third and main watershed exits the base to the east via Little West Fork Creek and forms a portion of the Red River Watershed.

Regulatory authority comes from both Tennessee and Kentucky, depending on which watershed is affected. The Kentucky Division of Water has jurisdiction over the Lower Cumberland River watershed, which includes Casey and Saline Creeks, while the Tennessee Department of Environment and Conservation (TDEC) has jurisdictional control over the Red River Watershed (Little West Fork).

Storm water runoff associated with construction activities is regulated by both Kentucky and Tennessee by the National Pollutant Discharge Elimination System (NPDES) General permit. Also, Fort Campbell is regulated by both states under the Municipal Separate Storm Sewer System (MS4) permitting program, for municipalities and entities serving a population of less than 100,000. While the compliance requirements for the Construction General permit are annual and specific to each project, the MS4 permit is a "broader brush approach", and includes more water quality and public involvement type provisions. Both the Construction General Permit and the MS4 permits can be found online at:
http://tennessee.gov/environment/wpc/sed_ero_controlhandbook/Appendix_A.pdf
http://www.state.tn.us/environment/wpc/stormh2o/MS4II.php

In addition to sediment, there other parameters of water quality that must be considered, i.e., pathogens, nutrients, etc. in the watershed of state-identified 303(d) listed streams or within a watershed that supports a state-identified threatened or endangered species.

This policy and its implementation is designed to establish requirements to ensure compliance of Fort Campbell's commitment to water quality sustainability, each state's storm water construction general permit, MS4 permit, and the future establishment of state-mandated total maximum daily loads (TMDLs). The amounts for TMDL (expressed as a mass loading per unit of time) and parameters (sediment, pathogens, nutrients, etc.) will vary from watershed-to-watershed,

depending on the severity of the impairment and the intended uses of the stream. Of the 14 creeks within the Fort Campbell military installation, four are included on Tennessee's 303(d) list and three are on Kentucky's 303(d) list, and there are others that are tributary to these listed streams and, therefore, potentially impacted. (See Attachment 3)

2. Objectives

The objectives of this policy are:

1. To protect, sustain, and enhance the public health, safety, general welfare, and water quality by establishing minimum requirements and procedures to control the adverse effects of storm water runoff associated with development;
2. To minimize erosion from areas of new development and significant redevelopment;
3. To reduce pollutants in storm water runoff to the maximum extent practicable;
4. To guide the construction of storm water management facilities by developing storm water master plans to address storm water runoff;
5. To encourage the use of natural and aesthetically pleasing design;
6. To ensure a functional storm water management system that will not result in excessive maintenance costs;
7. To minimize property damage.

3. Policy Statements

To implement the objectives presented above, the following general policy statements shall apply:

1. The Fort Campbell Policy for Erosion and Sediment Control at Construction Sites is intended to establish guidelines, criteria, and procedures for storm water management activities within the base, and to comply with Tennessee and Kentucky NPDES General Permit for Storm Water Discharges from Construction Activities. Fort Campbell is committed to continual improvement, prevention of pollution, and compliance with legal requirements. Also, this guidance document is intended to provide a regulatory mechanism to require erosion prevention and sediment controls as well as sanctions to ensure compliance. Key elements of the policy include Construction Site Final Stabilization Guidance, Storm Water Construction NPDES Permit Notice of Intent and Notice of Termination, Storm Water Pollution Prevention Plans, Storm Water Low Impact Design Requirements, Forestry Management, and Public Involvement.
2. No construction or land clearing activities shall be performed in a manner that will negatively impact storm water runoff in its vicinity or in other areas

whether by flow restrictions, increased runoff, increased pollutant loading, or by diminishing channel or over bank storage capacity.

3. New construction may not aggravate upstream or downstream flooding conditions. Improvements may be required in conjunction with new development to mitigate increases in peak flow or runoff.
4. Unwarranted acceleration of erosion due to various land clearing and development activities must be controlled. Off-site sedimentation is not allowed.
5. New construction shall not be permitted until temporary or permanent erosion prevention and sedimentation control management practices have been placed or constructed and are operational to control erosion and sediment.
6. Erosion prevention and sedimentation control practices shall ensure properties that drain to sensitive drainage ways or sinkholes are adequately protected.
7. Maintenance plans shall be developed to ensure storm water management controls are operating properly.
8. If allowed under separate permit application, construction in floodplains should be done in a way that protects or enhances storm water quality, greenways and buffer zones, and promotes land and tree conservation, greenways, floodplain preservation and hazard mitigation.
9. Contractors must comply with grading, drainage, and erosion and storm water quality plans for the development in which they are building and are responsible for erosion leaving their construction site.
10. Low Impact Design requirements shall be applied to **all** land disturbing projects to sustain water quality.
11. Contracting agencies shall have the authority to issue a stop work order should contractors not meet the requirements of this policy. Projects shall not proceed until such time that the contracting agency is satisfied the project is in compliance with this policy.
12. In order to ensure storm water runoff goals are met and maintained for permanent storm water drainage systems, an operation and maintenance plan shall be implemented with each initial design as required. Any structure or system that requires periodic maintenance to function properly must develop a maintenance plan and be approved by the Directorate of Public Works (DPW) prior to construction. The plan must include a maintenance schedule and required materials /equipment list.
13. Contractor's warranty of construction shall be required for each project to obtain site stabilization to a minimum of 95% for permanent erosion and sediment controls.
14. Fort Campbell will continue to be very active in the public involvement arena, as required in each state's MS4 permit and as one of the integral Best Management Practices. This policy is intended to be posted on the Fort Campbell web site. DPW will be the point-of-contact for questions and comments. Also, DPW plans to expand its participation with stake holders outside the base, specifically, the Red River Watershed Association and the Lower Cumberland Watershed Association.

15. This policy shall apply to all DOD contracted construction activities conducted within the Fort Campbell Military Installation with the exception of those conducted under privatization programs, specifically, Military Housing (Actus Lend Lease) , natural gas distribution (Clarksville Gas and Water), Waste Water Treatment and Water Treatment/Distribution Systems (CH2M Hill). While these three entities are encouraged to utilize this policy, they will continue to be responsible for complying with storm water requirements in a manner consistent with their existent contractual obligations to include obtaining their own storm water permits and supporting documentation, such as project specific Storm Water Pollution Prevention Plans (SWPPPs). However, all construction activities, including those conducted by privatized entities, will be required to adopt the Low Impact Development policy section contained in this document.

4. Storm Water Pollution Prevention Plans (SWPPPs)

For the purposes of this policy, storm water management is comprised of two plans, the 5-Acre or Less SWPPP and the Greater Than 5-Acre SWPPP. A brief description of these two plans is presented below.

4.1 5-Acre or Less SWPPP

The SWPPP for 5 Acres or Less (See Attachment 4) requires the contractor to develop a minimum amount of original, site-specific design for erosion and sediment control during construction. The contractor shall use the standard template SWPPP provided by the government. The two primary components required from the contractor consist of:

1. an information form with required data entry, and
2. a site-specific drawing depicting the erosion and sediment control plan for the construction project.

The plan will be submitted to the contracting agency prior to commencement of construction. A professional engineer or architect licensed in the state of Kentucky and/or Tennessee qualified by education and experience to perform the necessary hydrologic and hydraulic calculations shall be used for the design of a permanent or temporary sediment basin if such basin is required.

4.2 Greater Than 5 Acre SWPPP

The SWPPP for Greater than 5 Acres requires the contractor to develop a comprehensive plan using the guidance provided (See Attachment 5). The SWPPP shall be a stand-alone plan which will be submitted to the contracting agency prior to commencement of construction. A professional engineer or architect licensed in the state of Kentucky and/or Tennessee qualified by

education and experience to perform the necessary hydrologic and hydraulic calculations shall be used for the design of the erosion control plan and the SWPPP.

5. Storm Water Quality

All development in Fort Campbell shall be conducted in a manner that minimizes storm water pollution to the maximum extent practicable. Both structural and non-structural measures shall be employed at sites to reduce the potential for storm water pollution. Long-term measures shall also be employed by using Low Impact Design requirements, as outlined in Attachment 6, to reduce the potential for storm water pollution. Discharging oils, paints, yard debris and other pollutants to the storm water system shall be expressly prohibited.

6. NOI/NOT Process- Construction General Permit

The process of issuing the Notice of Intent (NOI) and Notice of Termination (NOT) to the contractor (see Attachment 2), and reporting these activities to the state regulatory agencies as part of the permit requirements, forms the nucleus of this policy document. Each of the 16 steps in this cycle (project-specific, annual and every 5 years) are defined on the process flow chart presented at the end of this section. These steps define submittal requirements, assign review and oversight responsibility for each type of construction project, and are supported with the various plans, specifications and inspection forms that constitute the Attachments to this policy document. The type and size of the construction project considered will dictate which requirements and associated Attachments will apply (Attachments 1-10 as listed in the Table of Contents). The primary contractor shall have the responsibility to ensure all sub contractors performing work on their project meets the requirements of their SWPPP or have submitted an additional SWPPP for their work. Fort Campbell will issue NOIs and NOTs to project proponents and contractors for coverage under the installation's storm water general permit.

The Directorate of Public Works is responsible for making sure that Fort Campbell maintains continuous storm water permit coverage annually from both Tennessee and Kentucky. DPW is also responsible for establishing storm water requirements and maintaining storm water files on each construction project, and for assurance that this storm water policy is being properly implemented. Also, changes to the storm water conveyance system maps shall be updated annually and properly maintained.

Fort Campbell's NOI/NOT Construction Permit Process Flow Chart, shown at the end of this section, diagrams the 16 steps used to manage the process. The following narrates each step.

1. Fort Campbell's policy for Nationwide/Comprehensive Permit Application is as follows: DPW- Environmental will notify the states (Tennessee and Kentucky) each calendar year that the NOI/NOT process for the base will disturb 500 acres or more of land for construction during the permit period. This process will in part help Fort Campbell better control the construction process, take the burden of estimating future construction sites off the project proponents, and help alleviate excessive backlog for the state's permitting offices (Previous estimates, while in good faith, were not practicable based on the dynamic work load of the installation. Fort Campbell will breakdown the projects into categories based on general type of project, acreage disturbed, and a summary of the process the contractors will follow and submit this information annually to Tennessee and every five years to Kentucky with the NOI application. Fort Campbell will pay the maximum permit initial filing fee of $7500 for the 5-year permit coverage to the State of Tennessee. Should this fee change the fee paid will be adjusted. The permit fee will be paid on or after 16 November of the calendar year before the start of the new permit calendar year. This payment process is intended to help ensure payment is received by the state in time for them to issue the permit without delay for payment not received on time as in the past. Kentucky currently does not have a fee for their NOI/NOT General Construction permit.

2. Fort Campbell Environmental Division sends the permit application to states in the first week of January for the year permit coverage is needed.

3. Tennessee normally has up to 60 days to issue the permit. Kentucky will allow work to begin two days after submitting the permit application.

4. The project is designed using Low Impact Design Requirements and other standards that ensure erosion and sediment controls are incorporated. The project is sent to the contracting agency after the design process is complete.

5. Pre-Award actions consist of the contracting agency sending the project out for bids. DPW and other contracting agencies may use a standard requirements contract to have a project accomplished. All contracting agencies shall ensure storm water erosion and sediment control requirements are incorporated into their documents.

6. Contracting Agency awards the contract and during this time the Contracting Officer's Representative (COR) will develop their Work/Quality Assurance Surveillance Plan (QASP).

7. Contractor submits Quality Control Plan and other deliverables. Contracting Agency reviews and accepts the submittals. DPW Environmental Division trained personnel in storm water compliance reviews the SWPPP to ensure compliance, enters project information into data base for tracking and retains file copy. Contract pre-award meeting is held to resolve all questions and

issues. After all acceptances the contractor is approved and authorized to discharge storm water associated with the construction activity. The contractor will accomplish discharge of storm water by properly trained personnel.

8. Contractor obtains copy of NOI for coverage to proceed from DPW Environmental Division. Environmental Division retains copy.

9. Contractor installs Best Management Practices (BMPs) for erosion and sediment controls. The NOI is kept on site in Tennessee. The NOI is kept on site or readily available in Kentucky. Pre-construction meetings are held as necessary to ensure SWPPP is followed.

10. Construction starts with contractor performing storm water inspections twice weekly and after a .5 inch or greater rain event. BMPs are adjusted as needed. Copies of the twice weekly inspection forms are sent to contracting agencies and DPW Environmental Division.

11. Project construction work is complete. Contractor ensures erosion and sediment controls meet requirements.

12. Site is 95% stabilized to design requirements. Warranty period is in place until contractor meets the 95% stabilization requirement for internal NOT which requires three-way concurrences by DPW Environmental Division, contracting agency, and design engineer to verify site is in compliance with NOT.

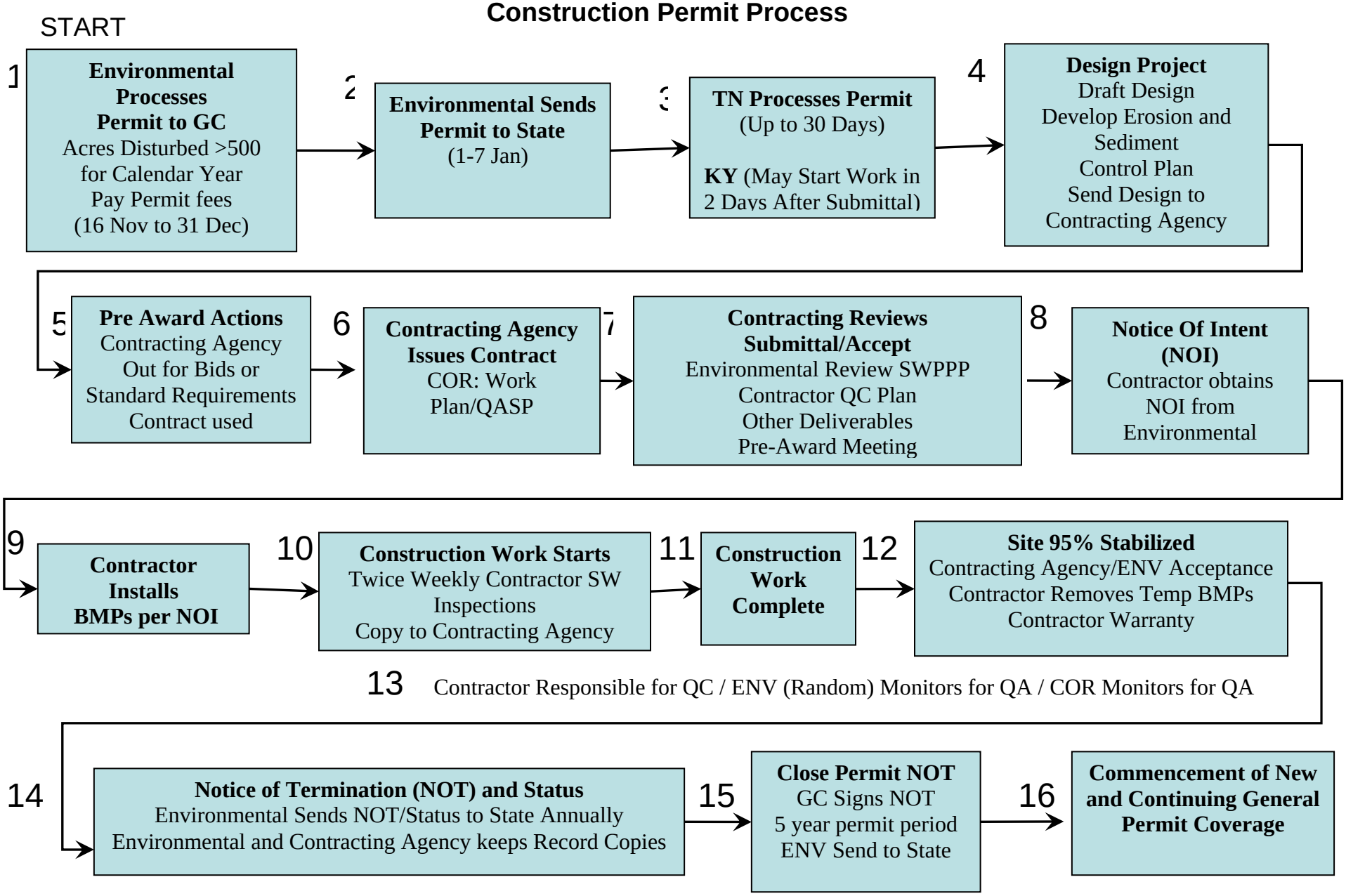
13. The contractor is responsible for the quality control of erosion and sediment control measures used at the construction site. COR performs quality assurance inspections to ensure conformance to the requirements. Environmental Division performs random quality assurance inspections as required. These QA/QC assessments are performed during steps 9 through 12.

14. Environmental Division sends to the states year-end report on status of construction projects for end of calendar year. Reports are sent in January. Each project is tracked on the form in Attachment 9 titled Construction Site (Storm Water) Status Form.

15. At the end of the five-year permit period Garrison Commander signs the NOT. All projects that have been completed during the permit period are listed and sent to the states.

16. Coverage will continue with application and issuance of a new general permit.

Fort Campbell, Kentucky NOI/NOT
Construction Permit Process



Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 1

NPDES Permits
Tennessee and Kentucky

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 1A

NPDES Permit
Construction, General - Tennessee

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
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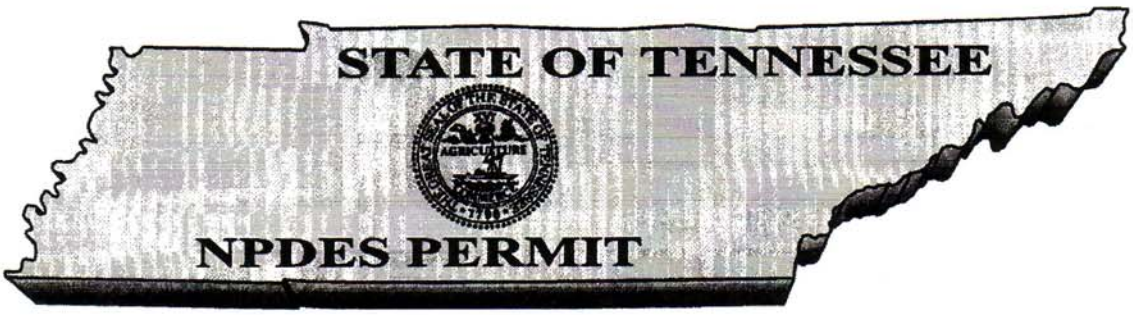
ATTACHMENT 1B

NPDES Permit
Construction, General - Kentucky

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 1C

NPDES Permit
MS4 - Tennessee



NPDES GENERAL PERMIT FOR DISCHARGES

From

SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

PERMIT NO. TNS000000

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and approval from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.) and the Water Quality Act of 1987, P.L. 100-4, operators of small municipal separate storm sewer systems are authorized to discharge storm water runoff into waters of the State of Tennessee in accordance with the various eligibility criteria, administrative procedures, program requirements, reporting requirements, etc. set forth in parts 1 through 7 herein.

This permit is issued on: **January 31, 2004**

This permit is effective on: **December 31, 2003**

This permit expires on: **February 26, 2008**

Paul E. Davis, Director
Division of Water Pollution Control

CN-0759

RDAs 2352 and 2366

NPDES GENERAL PERMIT FOR DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

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Introduction --

The following document is a Tennessee's National Pollutant Discharge Elimination System (NPDES) general permit for small municipal separate storm sewer systems (MS4s). It is designed for permitting those MS4s regulated as a result of the December 8, 1999, EPA Phase II storm water rule.

Various information about the state's phase II program can be found on our Phase II web site: http://www.state.tn.us/environment/wpc/stormh2o/MS4II.htm, including:

The permit itself;
The rationale sheet setting forth reasons behind the conditions of the permit;
The notice of intent form (NOI);
A list of regulated MS4s in Tennessee; and
Other information, including links to useful storm water management resources.

This permit authorizes discharges of storm water runoff and several non-storm water discharges, provided the activities are in compliance with the terms of this permit.

Submitting NOIs & obtaining coverage under this permit

In order to obtain coverage under this permit, the operator of an MS4 must submit an NOI to the Division of Water Pollution Control (division) at the local Environmental Assistance Center. The NOI must follow the guidelines in part 2, Notice of Intent Requirements, of the NPDES MS4 general permit. After the division reviews the NOI, the permittee will be issued a notice of coverage (NOC), by July 1, 2003, or 90 days after the date that the NOI is postmarked, whichever is later.

Annual reports

After the effective date of permit coverage, the operator of the MS4 is required to submit an annual report to the division regarding its storm water quality management program. The annual report should be submitted to the Nashville central office of the division (see part 5.4, Reporting). For permittees who obtain coverage in 2003, the first annual report should cover the period July 1, 2003, through June 30, 2004, and is due on September 30, 2004. Subsequent annual reports are due September 30.

Annual maintenance fee

There is an annual permit maintenance fee associated with this permit of $2500/year. The permittee will be invoiced.

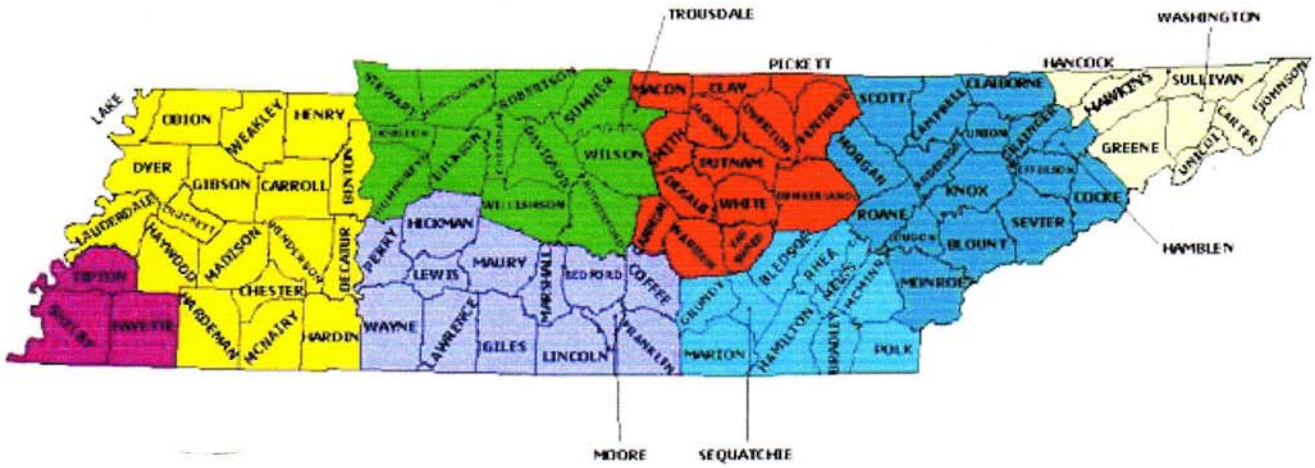
1. COVERAGE UNDER THIS PERMIT

1.1. Permit Area

This permit covers the entire State of Tennessee.

1.2. List and Map of the Division's Environmental Assistance Centers (EACs) and Corresponding Counties

EAC Name	List of Counties
Chattanooga	Bledsoe, Bradley, Grundy, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, Sequatchie
Columbia	Bedford, Coffee, Franklin, Giles, Hickman, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry, Wayne
Cookeville	Cannon, Clay, Cumberland, De Kalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren, Warren, White
Jackson	Benton, Carroll, Chester, Crockett, Decatur, Dyer, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, Madison, McNairy, Obion, Weakley
Johnson City	Carter, Greene, Hancock, Hawkins, Johnson, Sullivan, Unicoi, Washington
Knoxville	Anderson, Blount, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Loudon, Monroe, Morgan, Roane, Scott, Sevier, Union
Memphis	Fayette, Shelby, Tipton
Nashville	Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Trousdale, Williamson, Wilson



1.3. List of the Division's EACs with Addresses and Phone Numbers

EAC Name	Address	City	Zip	Area Code	Phone Number
Chattanooga	540 McCallie Avenue, Suite 550	Chattanooga	37402-2013	423	634-5745
Columbia	2484 Park Plus Drive	Columbia	38401-5300	931	380-3371
Cookeville	1221 South Willow Avenue	Cookeville	38506-5300	931	432-4015
Jackson	362 Carriage House Drive	Jackson	38305-2222	731	512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601-2162	423	854-5400
Knoxville	2700 Middlebrook Pike, Suite 220	Knoxville	37921-5300	865	594-6035
Memphis	2510 Mt. Moriah Road, Suite E-645	Memphis	38115-1520	901	368-7939
Nashville	711 R.S. Gass Boulevard	Nashville	37243-1550	615	687-7000
Nashville Central Office	6th Floor, L&C Annex 401 Church Street	Nashville	37243-1534	615	532-0625

All Environmental Assistance Centers (EACs) may be reached by telephone at the toll-free number 1-888-891-8332 (TDEC).

1.4. Eligibility

1.4.1. This permit authorizes discharges of storm water from small municipal separate storm sewer systems (MS4s), as defined in 40 CFR §122.26(b)(16). You are authorized to discharge under the terms and conditions of this general permit if you:

1.4.1.1 Operate a small MS4 within the permit area described in Section 1.1,

1.4.1.2 Are not a "large " or "medium " MS4 as defined in 40 CFR §122.26(b)(4) or (7), and

1.4.1.3 Submit a Notice of Intent (NOI) in accordance with Part 2 of this permit, and

1.4.1.4 Are located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census, or

1.4.1.5 Are designated for permit authorization by the division pursuant to 40 CFR §122.32.

1.4.2. The following are types of authorized discharges:

1.4.2.1 *Storm water discharges.* This permit authorizes storm water discharges to waters of the state from the small MS4s identified in Section 1.4.1, except as excluded in Section 1.5.

1.4.2.2 *Area of MS4 authorized.* Where a city or town is covered under this permit, this permit covers all portions and areas of the MS4 operated by the city or town. Where a county is covered under this permit, the permit covers the urbanized area of the county and any additional portions of the county, or the whole county, as shall be indicated on the notice of coverage (NOC). Applicants should indicate what portion of the county they wish covered under the permit.

1.4.2.3 *Non-storm water discharges* .You are authorized to discharge the following non-storm water sources provided that the division has not determined these sources to be substantial contributors of pollutants to your MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration (infiltration is defined as water other than wastewater that enters a sewer system, including sewer service connections and foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.)
- Uncontaminated pumped ground water
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensate
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual residential car washing
- Flows from riparian habitats and wetlands
- Dechlorinated swimming pool discharges
- Street wash water
- Discharges or flows from fire fighting activities

1.5. Limitations on Coverage

This permit does not authorize:

1.5.1. Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:

- In compliance with a separate NPDES permit; and
- Determined not to be a substantial contributor of pollutants to waters of the state.

1.5.2. Storm water discharges associated with industrial activity as defined in 40 CFR §122.26(b)(14)(i)-(ix) and (xi).

1.5.3. Storm water discharges associated with construction activity as defined in 40 CFR §122.26(b)(14)(x) or 40 CFR §122.26(b)(15).

1.5.4. Storm water discharges currently covered under another permit.

1.5.5. Discharges or discharge-related activities that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. See part 3.2 for instructions related to evaluating and certifying your status with respect to endangered and threatened species.

1.5.5.1 You are not authorized to discharge if the discharges or discharge-related activities cause a prohibited "take" of endangered or threatened species (as defined under Section 3 of the Endangered Species Act and 50 CFR §17.3), unless such takes are authorized under sections 7 or 10 of the Endangered Species Act.

1.5.5.2 You are not authorized for any discharges where the discharges or discharge-related activities are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA.

1.5.6. Discharges that would cause or contribute to in-stream exceedances of water quality standards. Your storm water management program must include a description of the BMPs that you will be using to ensure that this will not occur. The division may require corrective action or an application for an individual permit or alternative general permit if an MS4 is determined to cause an in-stream exceedance of water quality standards.

1.5.7. Discharges of any pollutant into any water for which a Total Maximum Daily Load (TMDL) has been approved by EPA, where the TMDL applies to storm water discharges from the MS4 a specific wasteload allocation and recommends it be incorporated into an individual NPDES permit.

1.5.7.1 This eligibility condition applies at the time you submit a Notice of Intent for coverage. For discharges not eligible for coverage under this permit, you must apply for and receive an individual or other applicable general NPDES permit prior to discharging.

1.5.7.2 If a TMDL is approved by EPA after you have received permit coverage and applies a specific wasteload allocation to the MS4, recommending it be incorporated into an individual permit, then you must apply for an individual NPDES permit within 90 days from promulgation of the TMDL, or earlier if the division notifies you of an earlier date. Until the individual permit is effective, you may remain covered by the general permit provided you comply with the applicable requirements of Part 3.

1.5.8. Discharges that do not comply with the division's anti-degradation policy for water quality standards, pursuant to the Rules of the Tennessee Department of Environment and Conservation (TDEC), Chapter 1200-4-3-.06, titled "Tennessee Antidegradation Statement."

1.6. Obtaining Authorization

1.6.1. To be authorized to discharge storm water from small MS4s, you must submit a Notice of Intent (NOI) and a description of your storm water management program in accordance with the deadlines presented in Section 2.1 of this permit.

1.6.2. You must submit the information required in Section 2.2 on the latest version of the NOI form (or photocopy thereof – see Addendum A). Your NOI must be signed and dated in accordance with Section 6.7 of this permit. Note: If the division notifies dischargers (either directly, by public notice, or by making information available on the Internet) of other NOI form options that become available at a later date (e.g., electronic submission of forms), you may take advantage of those options to satisfy the NOI use and submittal requirements of Part 2.

1.6.3. Dischargers who submit an NOI in accordance with the requirements of this permit are authorized to discharge storm water from small MS4s under the terms and conditions of this permit as of the effective date of coverage given in the notice of coverage(NOC) transmitted to the discharger by the state. The division may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information (see Section 6.16).

1.6.4. Where the operator changes, or where a new operator is added after submittal of an NOI under Part 2, a new NOI must be submitted in accordance with Part 2 prior to the change or addition.

2. NOTICE OF INTENT REQUIREMENTS

2.1. Deadlines for Notification

2.1.1. If you are automatically designated under 40 CFR §122.32(a)(1), then you are required to submit an NOI or apply for an individual permit by **March 10, 2003**.

2.1.2. If you are designated by the division, either before or after the date that this permit is issued, then you are required to submit an NOI to the division within 180 days of notice.

2.1.3. Submitting a late NOI. You are not prohibited from submitting an NOI after the dates provided above. If a late NOI is submitted, your authorization is only for discharges that occur after permit coverage is granted. The division reserves the right to take appropriate enforcement actions for any unpermitted discharges.

2.2. Contents of the Notice of Intent

2.2.1. The Notice(s) of Intent must be signed in accordance with Part 6.7 of this permit and must include the following information:

2.2.2. You must use the NOI form provided by the division as Appendix A to this permit. This document is also available in Microsoft Word format and Adobe® pdf format on our web page or by e-mail to you upon request. If you complete the form in the electronic version, you may add statements of explanation to the form, to make your information more readily understood.

2.2.3. The NOI requires you to submit various information, including:

2.2.3.1 The name of your municipal entity/state agency/federal agency, mailing address, and telephone number;

2.2.3.2 The name of the major receiving water(s) and an indication of whether any of your receiving waters are on the CWA §303(d) .

2.2.3.3 If you are relying on another governmental entity regulated under the storm water regulations (40 CFR122.26 &122.32) to satisfy one or more of your permit obligations (see Part 4.4), the identity of that entity(ies) and the element(s) they will be implementing.

2.2.3.4 Information on your chosen best management practices (BMPs) and the measurable goals for each of the storm water minimum Control Measures in Part 4.2 of this permit, your timeframe for implementing each of the BMPs, and the person or persons responsible for implementing or coordinating your Storm Water Management Program.

2.3. Where and How to Submit

2.3.1. You may submit your NOI either by hard copy or electronically. Insofar as you are able to do so, the Division prefers receiving NOIs by the electronic copy option.

2.3.1.1 Hard copy option. You must submit an original NOI, signed in accordance with the signatory requirements of Section 6.7 of this permit, and a copy of the NOI, to the address shown in the Part 1.3 for the division's Environmental Assistance Center responsible for the county where the facility is located.

2.3.1.2 Electronic copy option. Send by e-mail, with the completed application and attachments (such as map and city ordinances) to phase.two@state.tn.us. In addition, send an original, hard copy letter, signed by the responsible official of the MS4, which makes reference to the e-mail transmission and the exact time that the electronic NOI was submitted. The letter must contain the signatory statement found on page three of the NOI form.

3. SPECIAL CONDITIONS

3.1. Discharges to Water Quality Impaired Waters

3.1.1. Applicability: You must:

3.1.1.1 Determine whether storm water discharge from any part of the MS4 significantly contributes directly or indirectly to an impaired waterbody. Water quality impaired waters means any segment of surface waters that has been identified by the division as failing to support classified uses. If you have discharges meeting these criteria, you must comply with Part 3.1.1.2 and 3.1.2; if you do not, the remainder of this Part 3.1 does not apply to you.

3.1.1.2 If you have discharges as described above, you must also determine whether a Total Maximum Daily Load (TMDL) has been developed by the division and approved by EPA for the listed waterbody. If there is a TMDL, you must comply with both Parts 3.1.2 and 3.1.3; if no TMDL has been approved, Part 3.1.3 does not apply until a TMDL has been approved.

3.1.2. Water Quality Controls for Discharges to Impaired Waterbodies. The storm water management program review submitted to the division must include a section describing how your program will control the discharge of the pollutants of concern.. This section must identify the measures and BMPs that will collectively control the discharge of the pollutants of concern. The measures should be presented in order of priority with respect to controlling the pollutants of concern.

3.1.3. Consistency with Total Maximum Daily Load (TMDL). If a TMDL has been approved for any waterbody into which you discharge, you must follow the procedure below and report on these activities in annual reports to the division:

3.1.3.1 Determine whether the approved TMDL is for a pollutant likely to be found in storm water discharges from your MS4.

3.1.3.2 Determine whether the TMDL includes a pollutant wasteload allocation (WLA), implementation recommendations, or other performance requirements specifically for storm water discharges from your MS4.

3.1.3.3 Determine whether the TMDL addresses a flow regime likely to occur during periods of storm water discharge.

3.1.3.4 After the determinations above have been made and if it is found that your MS4 must implement specific provisions of the TMDL, evaluate whether the implementation of existing storm water control measures is meeting the TMDL provisions, or if additional control measures are necessary.

3.1.3.5 Document all control measures currently being implemented or planned to be implemented. Include a schedule of implementation for all planned controls. Provide your rationale (e.g., calculations, assessments, reports and/or other evidence) that shows that you will comply with the TMDL provisions. For control measures that are expected to be implemented and evaluated beyond the

term of this permit, you should also include longer schedule of implementation as necessary to describe the control measure.

3.1.3.6 Describe a method to evaluate whether the storm water controls are adequate to meet the requirements of the TMDL.

3.1.3.7 If the evaluation shows that additional or modified controls are necessary, describe the type and schedule for the control additions/revisions.

3.2. Protection of Listed Threatened or Endangered Species

3.2.1. You must evaluate annually whether or not your storm water discharges, allowable non-storm water discharges, and discharge-related activities are likely to jeopardize the continued existence of any species that are listed as endangered or threatened ("listed ") under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA ("critical habitat"). Also reference the Fish and Wildlife Service lists at http://endangered.fws.gov/wildlife.html#Species. You should keep documentation of the evaluations and decisions reached through the evaluation.

3.2.1.1 "Discharge-related activities" include: activities which cause, contribute to, or result in storm water point source pollutant discharges; and measures to control storm water discharges, including the siting, construction and operation of best management practices (BMPs) to control, reduce or prevent storm water pollution.

3.2.1.2 Evaluation procedure: You must use the most recent Endangered and Threatened Species County-Species List available from EPA and the follow the process described below to determine whether or not your discharges and discharge-related activities are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the ESA, or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. You must meet one or more of the criteria in 3.2.1.2.1 through 3.2.1.2.5 below for the entire term of coverage under the permit.

3.2.1.2.1 Criteria A: No endangered or threatened species or critical habitat are in proximity to your MS4 or the point where authorized discharges reach the receiving water; or

3.2.1.2.2 Criteria B: In the course of a separate federal action involving your MS4 (e.g., the division's processing a request for an individual NPDES permit, issuance of a CWA §404 wetlands dredge and fill permit, etc.), formal or informal consultation with the Fish and Wildlife Service and/or the National Marine Fisheries Service (the "Services ") under Section 7 of the Endangered Species Act (ESA) has been concluded and that consultation:

- Addressed the effects of your storm water discharges, allowable non-storm water discharges, and discharge-related activities on listed species and critical habitat and
- The consultation resulted in either a no jeopardy opinion or a written concurrence by the Service on a finding that your storm water discharges,

allowable non-storm water discharges, and discharge-related activities are not likely to adversely affect listed species or critical habitat; or

3.2.1.2.3 Criteria C: Your activities are authorized under Section 10 of the ESA and that authorization addresses the effects of your storm water discharges, allowable non-storm water discharges, and discharge-related activities on listed species and critical habitat; or

3.2.1.2.4 Criteria D: Using best judgment, you have evaluated the effects of your storm water discharges, allowable non-storm water discharges, and discharge-related activities on listed endangered or threatened species and critical habitat and do not have reason to believe the discharge and discharge-related activities will jeopardize the continued existence of any species or result in the adverse modification or destruction of critical habitat.

3.2.1.2.5 Criteria E: Your storm water discharges, allowable non-storm water discharges, and discharge-related activities were already addressed in another operator's certification of eligibility under Part 3.2.1.2.1 through 3.2.1.2.4 which included your MS4's activities. By certifying eligibility under this Part, you agree to comply with any measures or controls upon which the other operator's certification was based;

3.2.1.3 The division may require any permittee or applicant to provide documentation of the permittee or applicant's determination of eligibility for this permit where EPA or the Fish and Wildlife and/or National Marine Fisheries Services determine that there is a potential impact on endangered or threatened species or a critical habitat.

3.2.1.4 You are not authorized to discharge if the discharges or discharge-related activities cause a prohibited "take" of endangered or threatened species (as defined under Section 3 of the Endangered Species Act and 50 CFR §17.3), unless such takes are authorized under sections 7 or 10 of the Endangered Species Act.

3.2.1.5 You are not authorized for any discharges where the discharges or discharge-related activities are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA.

3.3. Co-permittees

3.3.1. You may be covered under this general permit as a co-permittee with one or more other, neighboring MS4s.

3.3.2. In order to be permitted as co-permittees, you and the other MS4(s) must submit an NOI with the same set of BMPs for all co-permittees. A single NOI must be signed by responsible officials of each participating MS4. If measurable goals and implementation milestones vary, each co-permittee must submit its own appendix to the NOI, "BMP Measurable Goals and Implementation Milestones." The description of your storm water management program must clearly describe which permittees are responsible for implementing each of the control measures.

3.3.3. Each co-permittee is individually liable for:

a. Permit compliance for discharges from portions of the MS4 where it is the operator and for areas within its legal jurisdiction;
b. Ensuring that the six minimum measures are implemented for portions of the MS4 where it is the operator and in areas within its legal jurisdiction; and
c. If any permit conditions are established for specific portions of the MS4, co-permittees need only comply with the permit conditions relating to those portions of the MS4 for which they are the operator.

3.3.4. Each co-permittee is jointly liable for compliance with annual reporting requirements in part 5.4 below, except that a co-permittee is individually liable for any parts of the annual report that relate exclusively to portions of the MS4 where it is the operator.

3.3.5. Specific co-permittees are jointly liable for permit compliance on portions of the MS4 as follows:

a. Where operational or storm water management program implementation authority over portions of the MS4 has been transferred from one co-permittee to another in accordance with legally binding interagency agreements, both the owner and operator may be jointly liable for permit compliance on those portions of the MS4; and
b. Where one or more co-permittees jointly own or operate a portion of the MS4, each owner/operator is jointly liable for compliance with permit conditions on the shared portion of the MS4.

4. STORM WATER MANAGEMENT PROGRAMS

4.1. Requirements

4.1.1. You must develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your small MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. The storm water management program should include management practices; control techniques and system, design, and engineering methods; and such other provisions as the division determines appropriate for the control of such pollutants. Your storm water management program must include the following information for each of the six minimum control measures described in Section 4.2 of this permit:

4.1.1.1 The best management practices (BMPs) that you or another entity will implement for each of the storm water minimum control measures;

4.1.1.2 The measurable goals for each of the BMPs including, as appropriate, the months and years in which you will undertake required actions, including interim milestones and the frequency of the action; and

4.1.1.3 The person or persons responsible for implementing or coordinating the BMPs for your storm water management program.

4.1.2. You must develop and fully implement your program in five years from the permit issuance date (February 27, 2003), except that certain elements of your program must be implemented by the following dates:

Permit requirement	Description	Implementation date
4.2.3.1.3	Ordinance prohibiting illicit discharges	Within 18 months of permit coverage (December 31, 2004)
4.2.4.1.1	Ordinance or other regulatory mechanism for construction site runoff control program	Within 18 months of coverage under this permit (4.2.4.2)
4.2.4.1	All components of construction site runoff control program, including plans review and inspections and staff training as required in 4.2.4.1.8	By December 31, 2005, for permittees required to file NOI in the year 2003; otherwise, within 24 months of coverage under this permit (4.2.4.2)
5.4	Reporting requirement	Annually by September 30 (1st report due September 30, 2004)

The December 31, 2004, and December 31, 2005, dates assume permit coverage initiated July 1, 2003.

4.2. Minimum Control Measures

The six minimum control measures that must be included in your storm water management program are:

4.2.1. Public Education and Outreach on Storm Water Impacts

4.2.1.1 *Permit requirement.* You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

4.2.1.1.1 For any types of activities you know to be storm water pollutant hot spots in your area, you must prepare a clear set of requirements with respect to storm water

management at these establishments and ensure that the establishments have been made aware of those requirements.

4.2.2. Public Involvement/Participation

4.2.2.1 *Permit requirement.* You must at a minimum, comply with State, and local public notice requirements when implementing a public involvement/ participation program.

4.2.3. Illicit Discharge Detection and Elimination

4.2.3.1 Permit requirement. You must:

4.2.3.1.1 Develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in 40 CFR §122.26(b)(2)) into your small MS4;

4.2.3.1.2 Develop, if not already completed, a storm sewer system map, showing the location of all outfalls *(i.e., points where the city or county-operated storm sewer system discharges into wet weather conveyances owned or operated by another MS4, or into waters with use classifications designated by the state.)* and the names and location of all use-designated waters of the state that receive discharges from those outfalls;

4.2.3.1.3 To the extent allowable under state or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

4.2.3.1.4 Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system;

4.2.3.1.5 Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and

4.2.3.1.6 Address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR §35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the state).

4.2.3.2 You must be able, by ordinance or other regulatory mechanism, to prohibit contamination of storm water runoff from hot spots.

4.2.4. Construction Site Storm Water Runoff Control

4.2.4.1 *Permit requirement.* You must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. Your program must include the development and implementation of, at a minimum:

4.2.4.1.1 An ordinance or other regulatory mechanism to require erosion prevention and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law; this regulatory mechanism must be in place within 18 months of coverage under this permit;

4.2.4.1.2 Requirements for construction site operators to implement appropriate erosion prevention and sediment control best management practices;

4.2.4.1.3 Requirements corresponding to the Tennessee Construction General Permit, effective July 1, 2000:

(a) Necessity of an erosion prevention and sediment control/pollution prevention plan
(b) Erosion and sediment control measures shall be designed to control the rainfall and runoff from a 2 year, 24 hour storm, as a minimum.
(c) For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2 year, 24 hour storm and runoff coefficient from each disturbed acre drained, or equivalent control measures, shall be provided until final stabilization of the site. Where no such calculation has been performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided until final stabilization of the site.

4.2.4.1.4 Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

4.2.4.1.5 Procedures for site plan review which incorporate consideration of potential water quality impacts;

4.2.4.1.6 Procedures for receipt and consideration of information submitted by the public; and

4.2.4.1.7 Procedures for site inspection and enforcement of control measures.

4.2.4.1.8 Your staff must be trained in the fundamentals of erosion prevention and sediment control and in how to review erosion and sediment control plans. At a minimum, this training must include the Tennessee Fundamentals of Erosion Prevention and Sediment Control; and the Erosion Prevention and Sediment Control Design Courses.

4.2.4.1.9 Your program must provide for the following:

(a) Recognition of priority construction activity, including at a minimum those construction activities discharging directly into, or immediately upstream of, waters the state recognizes as impaired (for siltation) or high quality;
(b) Pre-construction meetings with construction-site operators, for priority construction activities; and
(c) Inspections by the MS4, of priority construction sites at least once per month.

4.2.4.2 You must establish the ordinance or other regulatory mechanism of this minimum measure (4.2.4.1.1) within 18 months of the effective date of your notice of coverage; and all components by December 31, 2005, for permittees required to file NOI in the year 2003; otherwise, within 24 months of the effective date of your notice of coverage.

4.2.5. Post-Construction Storm Water Management in New Development and Redevelopment

4.2.5.1 Permit requirement. You must:

4.2.5.1.1 Develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts;

4.2.5.1.2 Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community; and

4.2.5.1.3 You must develop and implement a set of requirements to establish, protect and maintain water quality buffers in areas of new development and redevelopment.

4.2.5.1.4 Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law; and

4.2.5.1.5 Ensure adequate long-term operation and maintenance of BMPs.

4.2.6. Pollution Prevention/Good Housekeeping for Municipal Operations

4.2.6.1 Permit requirement. You must:

4.2.6.1.1 Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations; and

4.2.6.1.2 Using training materials that are available from EPA, the division, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

4.2.6.1.3 You must consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance must be an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

4.3. Qualifying State or Local Program

If there is a qualifying state or local program that implements one or more elements of the six minimum measures outlined above in your area of jurisdiction, then you are not required to develop and implement those program elements.

4.4. Sharing Responsibility

Implementation of one or more of the minimum measures may be shared with another entity, or the entity may fully take over the measure. You may rely on another entity only if:

4.4.1. The other entity, in fact, implements the control measure;

4.4.2. The particular control measure, or component of that measure, is at least as stringent as the corresponding permit requirement.

4.4.3. The other entity agrees to implement the control measure on your behalf. Written acceptance of this obligation is expected. This obligation must be maintained as part of the description of your storm water management program. If the other entity agrees to report on the minimum measure, you must supply the other entity with the reporting requirements contained in Section 5.4 of this permit. If the other entity fails to implement the control measure on your behalf, then you remain liable for any discharges due to that failure to implement.

4.5. Reviewing and Updating Storm Water Management Programs

4.5.1. *Storm Water Management Program Review:* You must do an annual review of your Storm Water Management Program in conjunction with preparation of the annual report required under Part 5.4.

4.5.2. *Storm Water Management Program Update:* You may change your Storm Water Management Program during the life of the permit in accordance with the following procedures:

4.5.2.1 Changes adding (but not subtracting or replacing) components, controls, or requirements to the Storm Water Management Program may be made at any time upon written notification to the division.

4.5.2.2 Changes replacing an ineffective or unfeasible BMP specifically identified in the Storm Water Management Program with an alternate BMP may be adopted at any time, provided you clearly report the analysis outlined below in the subsequent annual report. You may present this analysis as a request for BMP change prior to making the change. Unless denied by the division within 60 days, changes reported in the annual report or requested in writing prior to making the change, in accordance with the criteria below, shall be deemed approved. If a change is rejected or a request is denied, the division will send you a written response giving a reason for our decision. Unless other provisions are arranged, the division will indicate that the previous BMP shall be put back into effect.

4.5.2.2.1 An analysis of why the BMP is ineffective or infeasible (including cost prohibitive),

4.5.2.2.2 Expectations or report on the effectiveness of the replacement BMP, and

4.5.2.2.3 An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced, or has achieved those goals.

4.5.2.3 Change requests or notifications must be made in writing and signed in accordance with Part 6.7.

4.5.3. Storm Water Management Program Updates Required by the division: The division may require changes to the Storm Water Management Program as needed to:

4.5.3.1 Address impacts on receiving water quality caused, or contributed to, by discharges from the Municipal Separate Storm Sewer System;

4.5.3.2 Include more stringent requirements necessary to comply with new Federal statutory or regulatory requirements; or

4.5.3.3 Include such other conditions deemed necessary by the division to comply with the goals and requirements of the Clean Water Act.

4.5.3.4 Changes requested by the division must be made in writing to you, set forth the time schedule for you to develop the changes, and offer you the opportunity to propose alternative program changes to meet the objective of the requested modification. All changes required by the division will be made in accordance with 40 CFR §124.5, 40 CFR §122.62, or as appropriate 40 CFR §122.63.

4.5.4. Transfer of Ownership, Operational Authority, or Responsibility of portions of an MS4 to you

You must implement the Storm Water Management Program on all new areas added to your portion of the municipal separate storm sewer system (or for which you become responsible for implementation of storm water quality controls) as expeditiously as practicable, but not later than one year from addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately.

4.5.4.1 Within 90 days of a transfer of ownership, operational authority, or responsibility for storm water management program implementation, you must have a plan for implementing your Storm Water Management Program on all affected areas. The plan may include schedules for implementation. Information on all new annexed areas and any resulting updates required to the Storm Water Management Program must be included in the annual report.

4.5.4.2 Only those portions of the Storm Water Management Program specifically required as permit conditions shall be subject to the modification requirements of 40 CFR §124.5. Addition of components, controls, or requirements by the permittee(s) and replacement of an ineffective or infeasible BMP implementing a required component of the Storm Water Management Program with an alternate BMP expected to achieve the goals of the original BMP shall be considered minor changes to the Storm Water Management Program and not modifications to the permit.

5. MONITORING, RECORDKEEPING, AND REPORTING

5.1. Analytical monitoring

5.1.1. Items 5.1 is included in case the MS4 elects to perform analytical monitoring as a part of its storm water management program. "Monitoring" refers to analytical monitoring in section 5.1.1 to 5.1.3.

5.1.2. When you conduct monitoring of storm water discharges from your MS4, or of waterbodies into which storm water discharges enter, you are required to comply with the following:

5.1.2.1 *Representative monitoring.* Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

5.1.2.2 *Test Procedures.* Monitoring results must be conducted according to test procedures approved under 40 CFR §136.

5.1.3. Records of monitoring information shall include:

5.1.3.1 The date, exact place, and time of sampling or measurements;

5.1.3.2 The names(s) of the individual(s) who performed the sampling or measurements;

5.1.3.3 The date(s) analyses were performed;

5.1.3.4 The names of the individuals who performed the analyses;

5.1.3.5 The analytical techniques or methods used; and

5.1.3.6 The results of such analyses.

5.2. Non-analytical monitoring

5.2.1. When you conduct non-analytical monitoring of storm water discharges, of waterbodies into which storm water discharges enter, or of indicators of water quality, you are required to comply with the following:

5.2.1.1 Representative monitoring. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

5.2.2. Records of monitoring information shall include:

5.2.2.1 The date, exact place, and time of sampling or measurements;

5.2.2.2 The names(s) of the individual(s) who performed the sampling or measurements;

5.2.2.3 The date(s) analyses were performed;

5.2.2.4 The names of the individuals who performed the analyses;

5.2.2.5 A description of the monitoring technique or method; and

5.2.2.6 The results of the monitoring.

5.3. Record keeping

5.3.1. You must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, a copy of the NPDES permit, and records of all data used to complete the application (NOI) for this permit, for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. The division may extend this period with good cause.

5.3.2. You must submit your records to the division only when specifically asked to do so. You must retain a description of the Storm Water Management Program required by this permit (including a copy of the permit language) at a location accessible to the division. You must make your records, including the Notice of Intent (NOI) and the description of the storm water management program, available to the public if requested to do so in writing.

5.4. Reporting

You must submit annual reports to the director by September 30 following each year of the permit term. You may fulfill this requirement by submitting the report via e-mail, in a form readily accessible by staff of the Department of Environment and Conservation. The report must include:

5.4.1. The status of your compliance with permit conditions, an assessment of the appropriateness of the identified best management practices, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and the measurable goals for each of the minimum control measures;

5.4.2. Results of information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;

5.4.3. A summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule);

5.4.4. Proposed changes to your storm water management program, including changes to any BMPs or any identified measurable goals that apply to the program elements; and

5.4.5. Notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable).

6. STANDARD PERMIT CONDITIONS

6.1. Duty to Comply

6.1.1. You must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and/or the Tennessee Water Quality Control Act (TWQCA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

6.1.2. Penalties for Violations of Permit Conditions

Pursuant to T.C.A. § 69-3-115 of The Tennessee Water Quality Control Act of 1977, as amended:

6.1.2.1 any person who violates an effluent standard or limitation or a water quality standard established under this part (T.C.A. § 69-3-101, et. seq.); violates the terms or conditions of this permit; fails to complete a filing requirement; fails to allow or perform an entry, inspection, monitoring or reporting requirement; violates a final determination or order of the board, panel or commissioner; or violates any other provision of this part or any rule or regulation promulgated by the board, is subject to a civil penalty of up to ten thousand dollars ($10,000) per day for each day during which the act or omission continues or occurs;

6.1.2.2 any person unlawfully polluting the waters of the state or violating or failing, neglecting, or refusing to comply with any of the provisions of this part (T.C.A. § 69-3-101, et. seq.) commits a Class C misdemeanor. Each day upon which such violation occurs constitutes a separate offense;

6.1.2.3 any person who willfully and knowingly falsifies any records, information, plans, specifications, or other data required by the board or the commissioner, or who willfully and knowingly pollutes the waters of the state, or willfully fails, neglects or refuses to comply with any of the provisions of this part (T.C.A. § 69-3-101, et. seq.) commits a Class E felony and shall be punished by a fine of not more than twenty-five thousand dollars ($25,000) or incarceration, or both.

6.1.2.4 Nothing in this permit shall be construed to relieve the discharger from civil or criminal penalties for noncompliance. Notwithstanding this permit, the discharger shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of treated wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the discharger to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created. Furthermore, nothing in this permit shall be construed to preclude the State of Tennessee from any legal action or relieve the discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or the Federal Water Pollution Control Act.

6.2. Continuation of the Expired General Permit

This permit expires on February 26, 2008. You may maintain coverage under the administratively continued general permit (until a new general permit is issued) by re-submitting the completed NOI prior to the expiration date of this general permit. You can choose, or may be required, to obtain an individual permit; in that case, you must submit an application (Forms 1 and any other applicable forms) at least 180 days prior to expiration of this general permit. Permittees who are eligible and choose to be covered by a new general permit must submit an NOI by the date specified in that permit.

6.3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for you in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

6.4. Duty to Mitigate

You must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

6.5. Duty to Provide Information

You must furnish to the division, within a time specified by the division, any information that the division may request to determine compliance with this permit. You must also furnish to the division upon request, copies of records required to be kept by this permit.

6.6. Other Information

If you become aware that you have failed to submit any relevant facts in your Notice of Intent or submitted incorrect information in the Notice of Intent or in any other report to the division, you must promptly submit such facts or information.

6.7. Signatory Requirements

All Notices of Intent, reports, certifications, or information submitted to the division, or that this permit requires be maintained by you shall be signed, dated and certified as follows:

6.7.1. *Notices of Intent.* All Notices of Intent shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

6.7.2. *Reports and other information.* All reports required by the permit and other information requested by the division or authorized representative of the division shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

6.7.2.1 *Signed authorization.* The authorization is made in writing by a person described in Part 6.7.1 above and submitted to the division.

6.7.2.2 *Authorization with specified responsibility.* The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility for environmental matter for the regulated entity.

6.7.3. *Changes to authorization.* If an authorization is no longer accurate because a different operator has the responsibility for the overall operation of the MS4,a new authorization satisfying the requirement of 6.7.2.2 must be submitted to the division prior to or together with any reports, information, or notices of intent to be signed by an authorized representative.

6.7.4. *Certification.* Any person (as defined above in 6.7.2.1 and 6.7.2.2) signing documents under Section 6.7 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

6.8. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

6.9. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related equipment) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

6.10. Inspection and Entry

You must allow the division or an authorized representative (including an authorized contractor acting as a representative of the division) upon the presentation of credentials and other documents as may be required by law, to do any of the following:

6.10.1. Enter your premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

6.10.2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

6.10.3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) practices, or operations regulated or required under this permit; and

6.10.4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

6.11. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. Your filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6.12. Permit Transfers

This permit is not transferable to any person except after notice to the division. The division may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

6.13. Anticipated Noncompliance

You must give advance notice to the division of any planned changes in the permitted small MS4 or activity which may result in noncompliance with this permit.

6.14. State Environmental Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable Tennessee law or regulation under authority preserved by the Section 510 of the Clean Water Act. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

6.15. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

6.16. Procedures for Modification or Revocation

Permit modification or revocation will be conducted according to 40 CFR §122.62, §122.63, §122.64 and §124.5.

6.17. Requiring an Individual Permit or an Alternative General Permit

6.17.1. *Request by the Division.* The division may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the division to take action under this paragraph. Where the division requires you to apply for an individual NPDES permit, the division will notify you in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for you to file the application, and a statement that on the effective date of issuance or denial of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications must be submitted to the appropriate Environmental Assistance Center (see 1.2 above). The division may grant additional time to submit the application upon request of the applicant. If you fail to submit in a timely manner an individual NPDES permit application as required by the division under this paragraph, then the applicability of this permit to you is automatically terminated at the end of the day specified by the division for application submittal.

6.17.2. *Request by permittee.* Any discharger authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. In such cases, you must submit an individual application in accordance with the requirements of 40 CFR §122.33(b)(2), with reasons supporting the request, to the division at the address for the appropriate Environmental Assistance Center (see 1.2 above). The request may be granted by issuance of any individual permit or an alternative general permit if the reasons cited by you are adequate to support the request.

6.17.3. *General permit termination* .When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or you are authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative NPDES general permit, the

applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the division.

7. DEFINITIONS

All definition contained in Section 502 of the Act and 40 CFR §122 shall apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided, but in the even of a conflict, the definition found in the Statute or Regulation takes precedence.

Analytical monitoring refers to monitoring of waterbodies (streams, ponds, lakes, etc.) or of storm water, according to 40 CFR 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants," or to state- or federally established protocols for biomonitoring or stream bioassessments.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer [See below under "water quality buffer."]

Co-permittee means a permittee to an NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator.

Control Measure as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the state.
CWA or The Act means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L.92-500,as amended Pub.L.95-217, Pub.L.95-576, Pub.L.96-483 and Pub.L.97-117, 33 U.S.C.1251 et seq.

Director means the director of the Tennessee Division of Water Pollution Control, or an authorized representative.

Discharge, when used without a qualifier, refers to "discharge of a pollutant " as defined at 40 CFR §122.2.

Division means the Tennessee Division of Water Pollution Control.

High Quality Waters are surface waters of the State of Tennessee that satisfy characteristics of high quality waters as listed in Rule 1200-4-3-.06 of the official compilation - rules and regulations of the State of Tennessee. Characteristics include waters designated by the Water Quality Control Board as Outstanding National Resource Waters (ONRW); waters that provide habitat for ecologically significant populations of certain aquatic or semi-aquatic plants or animals; waters that provide specialized recreational opportunities; waters that possess outstanding scenic or geologic values; or waters where existing conditions are

better than water quality standards. High quality waters are sometimes referred to as Tier II or Tier III (ONRW) waters.

Hot spot means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in storm water. Examples might include operations producing concrete or asphalt, auto repair shops, auto supply shops, large commercial parking areas, restaurants.

Illicit Connection means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge is defined at 40 CFR §122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.

Impaired Waters means any segment of surface waters that has been identified by the division as failing to support classified uses. The Division will notify applicants and permittees if there discharge is into, or is affecting, impaired waters.

Load Allocation (LA): The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background (40 CFR §130.2(g)).

Margin of Safety (MOS): The "MOS" accounts for uncertainty in the loading calculation. The MOS may not be the same for different waterbodies due to differences in the availability and strength of data used in the calculations.

MEP is an acronym for "Maximum Extent Practicable," the technology-based discharge standard for Municipal Separate Storm Sewer Systems to reduce pollutants in storm water discharges that was established by CWA §402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR §122.34.

Monitoring refers to tracking or measuring activities, progress, results, etc.; and can refer to non-analytical monitoring for pollutants by means other than 40 CFR 136 (and other than state- or federally established protocols in the case of biological monitoring and assessments), such as visually or by qualitative tools that provide comparative values or rough estimates.

MS4 is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to either a Large, Medium, or Small Municipal Separate Storm Sewer System (e.g. "the Dallas MS4"). The term is used to refer to either the system operated by a single entity or a group of systems within an area that are operated by multiple entities (e.g., the Cookeville MS4 includes MS4s operated by the city of Cookeville, the Tennessee Department of Transportation, the Maury County Flood Control District, Shelby County, and others).

Municipal Separate Storm Sewer (MS4) is defined at 40 CFR §122.26(b)(8) and means a conveyance or system of conveyances (including roads with drainage

systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i.) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the state;

(ii.) Designed or used for collecting or conveying storm water;

(iii.) Which is not a combined sewer; and

(iv.) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.

NOI is an acronym for "Notice of Intent" to be covered by this permit and is the mechanism used to "register" for coverage under a general permit.

Nonpoint Source is essentially any source of pollutant(s) that is not a point source. Examples are sheet flow from pastures and runoff from paved areas.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Priority construction activity shall be defined by the MS4, but shall include, at a minimum, those construction activities discharging directly into, or immediately upstream of, waters the state recognizes as impaired (for siltation) or high quality waters.

Water quality buffer means undisturbed vegetation, including trees, shrubs and herbaceous vegetation; enhanced or restored vegetation; or the re-establishment of vegetation bordering streams, ponds, wetlands, reservoirs or lakes, which exists or is established to protect those waterbodies.

Small Municipal Separate Storm Sewer System is defined at 40 CFR §122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the state, but is not defined as "large" or "medium " municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

Storm Water is defined at 40 CFR §122.26(b)(13) and means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm Water Management Program (SWMP) refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.

SWMP is an acronym for "Storm Water Management Program."

TMDL (Total Maximum Daily Load) in this permit generally refers to a study that: 1. quantifies the amount of a pollutant in a stream; 2. identifies the sources of the pollutant; and 3., recommends regulatory or other actions that may need to be taken in order for the stream to no longer be polluted. Quantitatively, it is the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background (40 CFR §130.2(I)). Following are actions that might be recommended: Re-allocate limits on the sources of pollutants documented as impacting streams. It might be necessary to lower the amount of pollutants being discharged under NPDES permits or to require the installation of other control measures, if necessary, to insure that standards will be met. For sources the division does not have regulatory authority over, such as ordinary non-point source agricultural and forestry activities, provide information and technical assistance to other state and federal agencies that work directly with these groups to install appropriate Best Management Practices. Even for the impacted streams TMDL development is not considered appropriate for all bodies of water: if enforcement has already been taken and a compliance schedule has been developed; or if best management practices have already been installed for non-regulated activities, the TMDL is considered not applicable. In causes involving pollution sources in other states, the recommendation may be that another state or EPA perform the TMDL analysis. TMDLs can be described by the following equation:

TMDL = sum of non-point sources (LA) + sum of point sources (WLA) + margin of safety

Wasteload Allocation (WLA): The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute the type of water quality-based effluent limitation. (40 CFR §130.2(h)).

Water Quality-Limited Segments: Those water segments that do not or are not expected to meet applicable water quality standards even after the application of technology-based effluent limitations required by sections 301(b) and 306 of the Act. (40 CFR §130.2(j)) Technology-based controls include, but are not limited to, best practicable control technology currently available (BPT) and secondary treatment.

Waters of the State or simply *Waters* is defined in the Tennessee Water Quality Control Act and means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through or border upon Tennessee or any portion thereof except those bodies of water confined to and

retained within the limits of private property in single ownership which do not combine to effect a junction with natural surface or underground waters.

Wet weather conveyances are man-made or natural watercourses, including natural watercourses that have been modified by channelization, that flow only in direct response to precipitation runoff in their immediate locality and whose channels are above the groundwater table and which do not support fish and aquatic life and are not suitable for drinking water supplies. 1200-4-3-.04(4)

"You" and *"Your"* as used in this permit is intended to refer to the permittee, the operator, or the discharger as the context indicates and that party's responsibilities (e.g., the city, the county, the flood control district, the U.S. Air Force, etc.).

APPENDIX A – Notice of Intent (NOI)

You may access a copy of the NOI at the division's Web page:

http://www.state.tn.us/environment/wpc/stormh2o/outlinea.doc (MS Word document)
or
http://www.state.tn.us/environment/wpc/stormh2o/outlinea.pdf (PDF format)

If you do not have access to the Internet,
please contact the division at 1-888-891-8332 (TDEC)
or
E-mail a request for the NOI at Phase.Two@state.tn.us

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 1D

NPDES Permit
MS4 - Kentucky

FACT SHEET
KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT FOR SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (SMS4)

KPDES No.: KYG200000
Date: June 15, 2001

1. **PERMIT COVERAGE**

a. This permit covers the entire Commonwealth of Kentucky.

b. Applicability

A small municipal separate storm sewer system (SMS4) is any MS4 not covered under Phase I of the storm water program as a medium or large MS4. An SMS4 can become regulated under Phase II in one of three ways:

Automatic designation due to location within an 'urbanized area' defined by the Bureau of Census. An automatically designated SMS4 remains so unless it meets the criteria for a waiver. (See 1.c. below.)

Potential designation for SMS4s outside of an urbanized area serving a population of at least 10,000 population and a population density of at least 1,000 people per square mile. The permitting authority is required to develop and apply designation criteria to determine if the MS4 causes, or has potential to cause, an adverse impact on water quality. Criteria must consider discharge to sensitive waters, high population density, high growth or growth potential, contiguity to an urbanized area, significant contributor of pollutants to the waters of the Commonwealth, and ineffective protection of water quality concerns by other programs.

Potential designation of any SMS4 outside of an urbanized area contributing substantially to the pollutant loading of a *physically interconnected* MS4 regulated by the storm water program.

c. Waivers

Option 1:

- system serves less than 1,000 people;
- system is not contributing substantially to the pollutant loading of a physically interconnected regulated MS4; and
- if the SMS4 discharges any pollutant identified as a cause of impairment of any receiving water body, storm water controls are not needed based on a wasteload allocation conducted as part of an EPA approved or established total maximum daily load (TMDL) addressing the pollutant of concern.

c. Waivers (continued)

Option 2:

- system serves less than 10,000 people;
- an evaluation of waters of the Commonwealth receiving discharges from the system indicates no storm water controls are needed based on a wasteload allocation that is part of an EPA approved or established TMDL addressing the pollutant of concern or an equivalent analysis; and
- it is determined that future discharges from the system do not have the potential to result in exceedances of water quality standards.

2. **NOTICE OF INTENT**

Existing systems intending to be regulated under this permit must submit a Notice of Intent (NOI) no later than March 10, 2003.

3. **PERMIT DURATION**

Five (5) years.

4. **THE ADMINISTRATIVE RECORD**

The Administrative Record, including application, draft permit, fact sheet, public notice, comments received, and additional information is available by writing the Division of Water at 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601.

5. REFERENCED AND CITED DOCUMENTS

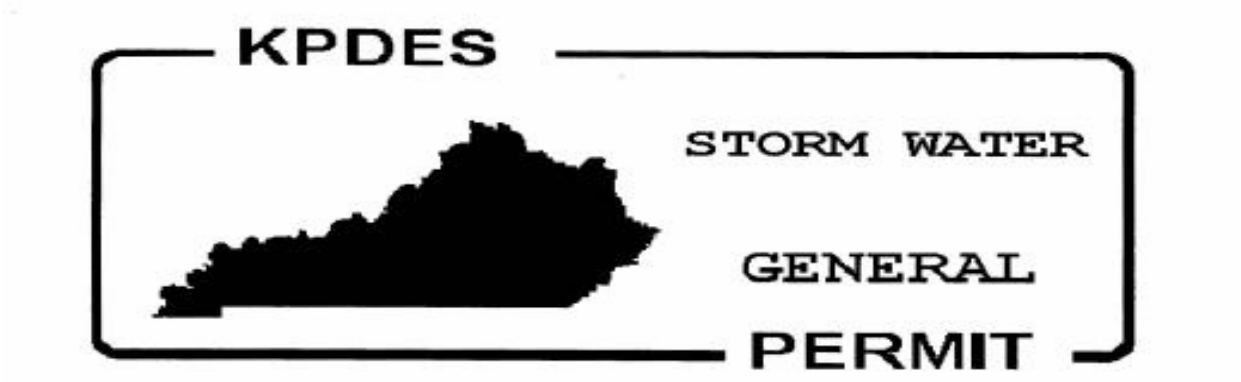
All materials and documents referenced or cited in this fact sheet are either a part of the Administrative Record as previously described or readily available at the Division of Water.

6. **CONTACT**

For further information, contact the individual identified on the Public Notice or the Storm Water Contact, Municipal Section, KPDES Branch, (502) 564-3410.

7. **PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final decision, deadline for comments and other information required by 401 KAR 5:075, Section 4(2)(e).



PERMIT NO.: KYG200000

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (SMS4)

Pursuant to Authority in KRS 224 and 5:060, the following discharges are authorized:

Small municipal separate storm sewer systems (SMS4)

Specifically excluded under this permit are discharges that:

Are subject to current, or expired and continued in effect, KPDES individual permits;

Are subject to any promulgated storm water effluent guideline or standard; Correspond to pending applications filed for individual permit;

Are otherwise designated by the Director as a significant contributor of pollution more appropriately regulated by an individual permit.

The receiving waters are located within the political boundaries of the Commonwealth of Kentucky.

Authorization for discharge is in accordance with the conditions set forth in PARTS I through III hereof.

The permit consists of this cover sheet, and Part I 3 pages, Part II 1 page, and Part III 1 page.

This permit shall become effective on January 1, 2003.

This permit and the authorization to discharge shall expire at midnight, December 31, 2007.

11/18/02
Date Signed

Jeffrey W. Pratt, Director
Division of Water

Robert W. Logan
Commissioner

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Water, Frankfort Office Park, 14 Reilly Road, Frankfort, Kentucky 40601

A. MINIMUM CONTROLS

1. Public Education and Outreach on Storm Water Impacts
Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

2. Public Involvement/Participation

At a minimum, comply with State, Tribal, and local public notice requirements when implementing a public involvement/participation program. Activities may include representation on local storm water management work groups, public hearings, education volunteers, assisting with program coordination and monitoring efforts.

3. Illicit Discharge Detection and Elimination

(i) Develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined at Sec. 122.26(b)(2)) into yourSMS4;
(ii) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
(iii) To the extent allowable under State, Tribal, or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;
(iv) Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system; and
(v) Inform public employees, businesses, and the general public of hazards associated with illegal
discharges and improper disposal of waste.
(vi) The following categories of non-storm water discharges or flows (i.e., illicit discharges) need to be addressed only if you identify them as significant contributors of pollutants to your small MS4: waterline flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20)), uncontaminatedpumped ground water, discharges from potable water sources,
foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against nonstorm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

4. Construction Site Storm Water Runoff Control

(i) Develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the NPDES permitting authority waives requirements for storm water discharges associated with small construction activity in accordance with Sec. 122.26(b)(15)(i), you are not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

(ii) Your program must include the development and implementation of, at a minimum:
(A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;
(B) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;
(C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
(D) Procedures for site plan review which incorporate consideration of potential water quality impacts;
(E) Procedures for receipt and consideration of information submitted by the public; and
(F) Procedures for site inspection and enforcement of control measures.

5. Post-Construction Storm Water Management in New Development and Redevelopment

(i) Develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts;

(ii) Develop and implement strategies, which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your

community;

(iii) Use an ordinance or other regulatory mechanism to address post construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and

(iv) Ensure adequate long-term operation and maintenance of BMPs.

6. Pollution Prevention/Good Housekeeping for Municipal Operations
Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

B. SCHEDULE OF COMPLIANCE

The permittee shall have fully developed and implemented the storm water program within the time frame of this permit.

STANDARD CONDITIONS FOR KPDES PERMIT

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:080 and KRS 224, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit;

2. Controls any pollutant not limited in the permit; or

3. In addition to the minimum control measures based on an approved total maximum daily load (TMDL) or equivalent analysis that determines such limitations are needed to protect water quality.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

PART III

OTHER REQUIREMENTS

A. Reporting and Records Retention

Annual reports must be submitted to the NPDES permitting authority for your first permit term. The report must include:

1. The status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving your identified measurable goals for each of the minimum control measures in terms of reducing the discharge of pollutants from the MS4 to the maximum extent practicable and in terms of protecting water quality;

2. Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

3. A summary of the storm water activities you plan to undertake during the next reporting cycle;

4. A change in any identified best management practices or measurable goals for any of the minimum control measures; and

5. Notice that you are relying on another governmental entity to satisfy some of your permit obligations (if applicable).

The report must be sent to the Division of Water at the address listed below postmarked no later than the 28th day of the January following the report calendar year.

Department for Environmental Protection
Division of Water
KPDES Branch/Municipal Section
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

Other records shall be retained for at least three (3) years. You must submit your records to the NPDES permitting authority only when specifically asked to do so. You must make your records, including a description of your storm water management program, available to the public at reasonable times during regular business hours.

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 2

NOI/NOT Forms
Tennessee and Kentucky

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 2A

NOI Form-Tennessee

Department of Environment and Conservation
Division of Water Pollution Control

CONSTRUCTION ACTIVITY – STORM WATER DISCHARGES
NOTICE OF INTENT (NOI)

Site Name:	**Existing Tracking No.**
Street Address or Location:	Start date:
	Estimated end date:
Site Description:	Latitude:
	Longitude:
County(ies):	Project Acreage:

Does a topographic map show dotted or solid blue lines ❑ and/or wetlands ❑ on or adjacent to the construction site?
If you checked either box above, has a stream determination been performed? ❑ Yes ❑ No ❑ Unknown
If wetlands are located on-site have the wetlands been delineated? ❑ Yes ❑ No ❑ NA
If an Aquatic Resource Alteration Permit has been obtained for this site, what is the permit number? ARAP permit No.:

Receiving waters:

Attach the SWPPP with the NOI ❑ SWPPP Attached	Attach a site location map ❑ Map Attached

Site Owner/Developer: (person, company, or legal entity that has operational or design control over construction plans and specifications)

Site Owner/Developer Contact: (individual responsible for site)	Title or Position:		
Mailing Address:	City:	State:	Zip:
Phone: ( )	E-mail:		

Optional Contact:	Title or Position:		
Address:	City:	State:	Zip:
Phone: ( )	E-mail:		

Owner/Developer Certification (must be signed by president, vice-president or equivalent, or ranking elected official)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Developer name; print or type	Signature	Date

Contractor(s) Certification (must be signed by president, vice-president or equivalent, or ranking elected official)

I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above, and/or my inquiry of the person directly responsible for assembling this NOI, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements.

Primary contractor name and address; print or type	Signature	Date
Other contractor name and address; print or type	Signature	Date
Other contractor name and address; print or type	Signature	Date

OFFICIAL STATE USE ONLY

Received Date	Reviewer	Field Office	Permit Number TNR	High Quality Water
Fee(s)	T & E Aquatic Fauna		Impaired Receiving Stream	Notice of Coverage Date

(continued on reverse)

CONSTRUCTION ACTIVITY – STORM WATER DISCHARGES
NOTICE OF INTENT (NOI) - INSTRUCTIONS

Purpose of this form A completed notice of intent (NOI) must be submitted to obtain coverage under the Tennessee General NPDES Permit for Discharges of Storm Water Associated with Construction Activity. **Requesting coverage under this permit means that an applicant has obtained and examined a copy of this permit, and thereby acknowledges applicant's claim of ability to be in compliance with permit terms and conditions.** This permit is required for storm water discharge(s) from construction activities including clearing, grading, filling and excavating (including borrow pits) of one or more acres of land. This form should be submitted at least 30 days prior to the commencement of land disturbing activities, or no later than 48 hours prior to when a new operator assumes operational control over site specifications or commences work at the site.

Permit fee (see table below) must accompany the NOI and is based on total acreage to be disturbed by an entire project, including any associated construction support activities (e.g. equipment staging yards, material storage areas, excavated material disposal areas, borrow or waste sites). There is no fee for sites less than 1 acre.

Acreage	Fee	Acreage	Fee	Acreage	Fee
= or > 500 acres	$7,500	= or > 75 < 100 acres	$2000	= or > 20 < 30 acres	$ 500
= or > 250 < 500 acres	$5000	= or > 50 < 75 acres	$1000	= or > 10 < 20 acres	$ 400
= or > 150 < 250 acres	$4000	= or > 40 < 50 acres	$ 750	= or > 5 < 10 acres	$ 300
= or > 100 < 150 acres	$3000	= or > 30 < 40 acres	$ 600	= or > 1 < 5 acres	$ 250

Who must submit the NOI form? The NOI form must be signed by the "operator(s)" of the construction site. Operators will most likely include the developer of the site, and the primary contractor(s). "Operator" means any party associated with the construction project that meets either of the following two criteria: (1) the party has design or operational control over project specifications (including the ability to make modifications in specifications); or (2) the party has day-to-day operational control of those activities at a project site which are necessary to ensure compliance with the storm water pollution prevention plan (SWPPP) or other permit conditions (e.g., they are authorized to direct workers at the site to carry out activities identified in the storm water pollution prevention plan or comply with other permit conditions). If a contractor has not been identified at the time the NOI is submitted by the developer, the contractor(s) must sign an NOI for the project in order to obtain authorization under this permit. The contractor must include the NPDES permit number that is already assigned to the site, along with the name of the construction project and its location.

Notice of Coverage The division will review the NOI for completeness and accuracy and prepare a notice of coverage (NOC). Storm water discharge from the construction site is not permitted until the division prepares a NOC for the construction site. However, if the division has not been able to transmit an NOC or a deficiency letter to a permittee within 30 days of receipt of a complete NOI, SWPPP and an appropriate fee, discharges can be authorized upon verbal or written approval by the division staff, provided any deficiencies with the document submittal have been resolved.

Complete the form Type or print clearly, using ink and not markers or pencil. Answer each item or enter "NA," for not applicable, if a particular item does not fit the circumstances or characteristics of your construction site or activity. If you need additional space, attach a separate piece of paper to the NOI form. **The NOI will be considered incomplete without a map and the SWPPP.**

Describe and locate the project Use the legal or official name of the construction site. If a construction site lacks street name or route number, give the most accurate geographic information available to describe the location (reference to adjacent highways, roads and structures; e.g. intersection of state highways 70 and 100). Latitude and longitude (expressed in decimal degrees) of the center of the site can be located on USGS quadrangle maps. The quadrangle maps can be obtained at 1-800-USA-MAPS, or at the Census Bureau world wide web site: http://www.census.gov/cgi-bin/gazetteer. Attach a copy of a portion of a 7.5 minute quad map, showing location of site, with boundaries at least one mile outside the site boundaries. Provide estimated starting date of clearing activities and completion date of the project, and an estimate of the number of acres of the site on which soil will be disturbed, including borrow areas, fill areas and stockpiles. For linear projects give location at each end of the construction area.

Give name of the receiving waters Trace the route of storm water runoff from the construction site and determine the name of the river(s), stream(s), creek(s), wetland(s), lake(s) or any other water course(s) into which the storm water runoff drains. Note that the receiving water course may or may not be located on the construction site. If the first water body receiving construction site runoff is unnamed ("unnamed tributary"), determine the name of the water body which the unnamed tributary enters.

ARAP permit may be required **If your work will disturb or cause alterations of a stream or wetland, you must obtain an appropriate Aquatic Resource Alteration Permit (ARAP).** If you have a question about the ARAP program or permits, contact your local Environmental Field Office (EFO).

Submitting the form and obtaining more information Note that this form must be signed by the company President, Vice-President, or a ranking elected official in the case of a municipality. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed NOI form (keep a copy for your records) to the appropriate EFO for the county(ies) where the construction activity is located, addressed to **Attention: Storm Water NOI Processing.**

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	2510 Mt. Moriah Road STE E-645	38115-1520	Cookeville	1221 South Willow Ave.	38506
Jackson	362 Carriage House Drive	38305-2222	Chattanooga	540 McCallie Avenue STE 550	37402-2013
Nashville	711 R S Gass Boulevard	37206	Knoxville	2700 Middlebrook Pike STE 220	37921
Columbia	2484 Park Plus Drive	38401	Johnson City	2305 Silverdale Road	37601

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 2B

NOI Form-Kentucky

Kentucky Pollutant Discharge Elimination System (KPDES)
Instructions
Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity
To Be Covered Under The KPDES General Permit

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the **Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.**

WHERE TO FILE NOI FORM

NOIs must be sent to the following address:

Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601

COMPLETING THE FORM

Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the **Storm Water Contact, Industrial Section, at (502) 564-3410.**

SECTION I - FACILITY OPERATOR INFORMATION

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal M = Public (other than federal or state)
S = State P = Private

SECTION II - FACILITY/SITE LOCATION INFORMATION

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

SECTION III - SITE ACTIVITY INFORMATION

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges. If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY

Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

SECTION V - CERTIFICATION

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer,which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authroity to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 2C

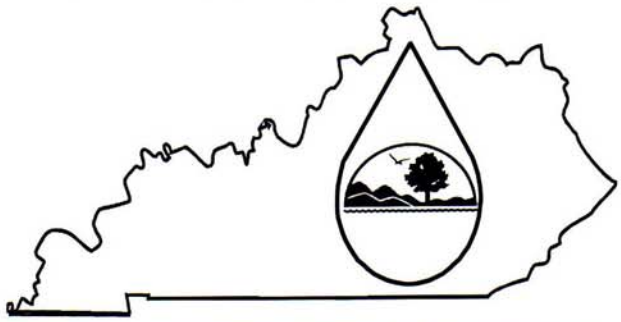
NOT Form-Tennessee

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 2D

NOT Form-Kentucky

KPDES FORM NOT-SW



Kentucky Pollutant Discharge Elimination System (KPDES)

NOTICE OF TERMINATION (NOT)
of Coverage Under the KPDES General Permit for Storm Water Discharges Associated with Industrial Activity

Submission of this Notice of Termination constitutes notice that the party identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the KPDES program.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.
(Please see instructions on back before completing this form.)

I. PERMIT INFORMATION
KPDES Storm Water General Permit Number:
Check here if you are no longer the Operator of the Facility: ☐
Check here if the Storm Water Discharge is Being Terminated: ☐
II. FACILITY OPERATOR INFORMATION
Name:
Address:
City/State/Zip Code:
Telephone Number:
III. FACILITY/SITE LOCATION INFORMATION
Name:
Address:
City/State/Zip Code:

Certification: I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by a KPDES general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity of waters of the Commonwealth is unlawful under the Clean Water Act and Kentucky Regulations where the discharge is not authorized by a KPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Kentucky Revised Statutes.

NAME (Print or Type)	TITLE
SIGNATURE	DATE

INSTRUCTIONS
NOTICE OF TERMINATION (NOT) OF COVERAGE UNDER THE KPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Who May File a Notice of Termination (NOT) Form
Permittees who are presently covered under the Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Industrial Activity may submit a Notice of Termination (NOT) form when their facilities no longer have any storm water discharges associated with industrial activity as defined in the storm water regulations at 40 CFR 122.26 (b)(14), or when they are no longer the operator of the facilities.

For construction activities, elimination of all storm water discharges associated with industrial activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with industrial activity from the construction site that are authorized by a KPDES general permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles have been employed.

Where to File NOT Form
Send this form to the following address:

Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
14 Reilly Road, Frankfort Office Park
Frankfort, KY 40601

Completing the Form
Type or print legibly in the appropriate areas and according to the instructions given for each section. If you have questions about this form, call the Storm Water Contact, Industrial Section, at (502) 564-3410.

Section I - Permit Information
Enter the existing KPDES Storm Water General Permit number assigned to the facility or site identified in Section III. If you do not know the permit number, **call the Storm Water Contact, Industrial Section at (502) 564-3410.**

Indicate your reason for submitting this Notice of Termination by checking the appropriate box:

If there has been a change of operator and you are no longer the operator of the facility or site identified in Section III, check the corresponding box.

If all storm water discharges at the facility or site identified in Section III have been terminated, check the corresponding box.

Section II - Facility Operator Information
Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Section III - Facility/Site Location Information
Enter the facility's or site's official or legal name and complete address, including city, state and ZIP code. If the facility lacks a street address, indicate the state, the latitude and longitude of the facility to the nearest 15 seconds, or the quater, section, township, and range (to the nearest quarter section) of the approximate center of the site.

Section IV - Certification
Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, State, Federal, or other public facility: by either a principal executive

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 3

Listing of 303(d) Streams on Fort Campbell Reservation
(Tennessee and Kentucky) and Schematic of Streams

Ft. Campbell Streams on Tennessee 303(d) List
Red River Watershed

Waterbody ID / County	Impacted Waterbody	Miles Impaired	Cause (Pollutant)	Pollutant Source	Comment
TN05130206 034 – 0110 Montgomery	Raccoon Branch	7.7	Siltation H Other Habitat Alterations H	Land Development Hydromodification	Stream is Category 5. (One or more uses impaired.)
TN05130206 034 – 0100 Montgomery	Fletchers Fork	25.3	Other Habitat Alterations H	Habitat Modification	Stream is Category 5. (One or more uses impaired.)
TN05130206 034 – 200 Stewart / Mont.	Piney Fork	38.5	Siltation H	Habitat Modification	Stream is Category 5. (One or more uses impaired.)
TN05130206 034 – 1000 Montgomery	Little West Fork	7.2	Phosphorus L Siltation H Organic Enrichment / Low DO L	Major Municipal Point Source Habitat Modification	Stream is Category 5. (One or more uses impaired.)

Ft. Campbell Streams on Kentucky 303(d) List
Lower Cumberland River Basin

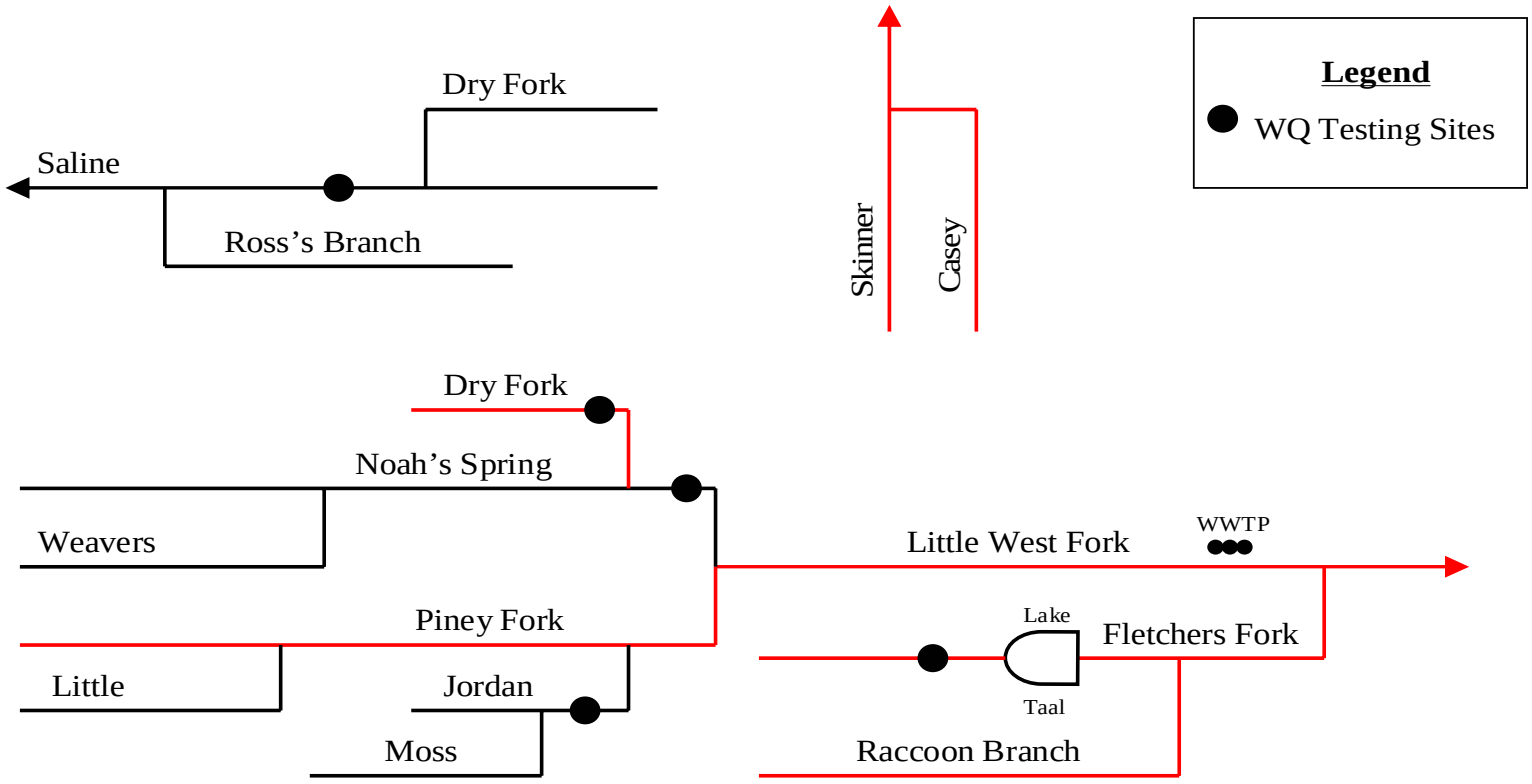
1st Priority Listings:

Waterbody	River Mile	Segment Length (miles)	County	Impaired Use(s)	Pollutant(s)	Suspected Source
Dry Fork Creek of Noah's Spring Branch	5.0 to 5.8	0.8	Christian	Aquatic Life (Nonsupport)	Siltation	Unknown
Skinner Creek of Casey Creek	0.0 to 5.8	5.8	Trigg	Aquatic Life (Nonsupport)	Unknown	Unknown

2nd Priority Listings:

Waterbody	River Mile	Segment Length (miles)	County	Impaired Use(s)	Pollutant(s)	Suspected Source
Casey Creek of Little River	0.0 to 3.6	3.6	Trigg	Aquatic Life (Partial Support)	Siltation	Sources Outside State Jurisdiction or Borders

Schematic of Creeks
Fort Campbell Military Reservation



Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 4

Storm Water Pollution Prevention Plan
5 Acres or Less

Fort Campbell, Kentucky

Storm Water Pollution Prevention Plan
For
Construction Sites that Disturb
Five Acres of Land or Less

For construction activities associated with

_____

Project Number _____

From (Date) _____through (Date) _____

Note: This Storm Water Pollution Prevention Plan was developed using the Fort Campbell SWPPP baseline template for construction sites that disturb five acres of land or less.

Fort Campbell, Kentucky
Storm Water Pollution Prevention Plan
For
Construction Sites that Disturb
Five Acres of Land or Less

Table of Contents

*** Page numbers have been intentionally omitted until added by electronic requirements to post to the WEB. There are 37 pages (from the title page to the last page) included within this document.**

Appendices

Section 1

FORT CAMPBELL, KENTUCKY
STORM WATER SEDIMENT AND EROSION CONTROL INFORMATION FORM FOR CONSTRUCTION SITES THAT DISTURB 5 ACRES OR LESS OF LAND/SOIL

NPDES Permit No. _____ Notice of Coverage (NOC) Date_____

State_____ County_____

Project No. _____Contract No._____

Name of Project _____

Project Location (latitude)_____ (longitude)_____

Project Location (Address)_____

Project Description_____

_____

Total Area of Site (acres) _____
Total Area of Site that is Expected to be Disturbed by Excavation, Grading or Other Activities (acres) _____
Increase in Impervious Area due to this Project (acres) _____

The Name of the Nearest USGS "blue line" Stream which will Receive Storm Water Runoff from this Site._____

Construction Materials that are Anticipated to be Present at this Construction Site Include:
_____
_____

Other Materials (such as fertilizers, lime, diesel, gasoline, machinery lubricants, etc.) that are anticipated to be present at this construction site shall be listed on a separate document by the Contractor as a part of the Fort Campbell Site Specific Spill Plan.

Name of Storm Water Inspector

_____

Developer and/or Contractor

Name_____

Address _____

Phone _____

Contractor's Certification

I certify under penalty of law that this contractor's form and all required contractor's attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered, evaluated and developed the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for developing the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there may be penalties for submitting false information.

_____
Printed Name

_____
Title

_____
Signature

_____
Date

Section 2

Purpose and Objectives

2.1 Purpose

This document is intended to be used as the Storm Water Pollution Prevention Plan (SWPPP) and shall be kept on the construction site or readily available for inspection. Each construction site **shall require a site specific drawing and map** from the contractor, as defined in Appendix C, and included with this plan for erosion and sediment control as needed for proper management. This plan is intended to comply with Federal, State, local, and Fort Campbell, KY regulations in the management of storm water erosion and sediment for construction sites that disturb five (5) acres or less. All sites are subject to inspections by Federal, State, local, and Fort Campbell agencies. This plan when submitted and used is intended for the contractor to ensure the controls used will meet the objectives. Compliance shall be verified through visual inspection after rain events, twice a week inspections, and other inspections and assessments as required. The plan shall be discussed at all preconstruction meetings.

2.2 Objectives

1. To protect human life and health.
2. To comply with Tennessee, Kentucky, and EPA regulations.
3. To protect water resources quantity and quality and prevent degradation of these resources.
4. To protect and enhance storm water quality at the level of designated use.
5. To control erosion and sediment runoff.
6. To maintain and protect the natural, physical, and biological characteristics and functions (e.g., no significant changes in the hydrological regime or pollutant input) of the receiving water.

Section 3

Erosion and Sediment Control

3.1 General Requirements

1. Each individual project shall implement sediment and erosion control measures to prevent sediment from leaving the construction site.
2. No construction shall be performed in a manner that will negatively impact the storm water quantity or quality of any wet weather conveyance of Fort Campbell.
3. All development shall be conducted in a manner which minimizes soil erosion and resulting sedimentation. Under no circumstances is construction to allow sediment to leave a construction site in a way that would be a violation of state regulations. Site specific variables such as topography, soil erodibility, storm water management features, and vegetation shall be considered when implementing sediment and erosion control measures. The exposed area of any disturbed land shall be limited to the smallest practical area for the shortest possible period of time. A rain gauge is recommended to record rainfall events at the site, or use a representative reference site for a record of daily amount of precipitation.
4. Contractor is **required** to have a person qualified to perform erosion prevention and sediment control inspections. The qualified individual should have current certification through the Tennessee Erosion Prevention and Sediment Control and Certification Program Course, or be able to provide documentation of equal qualification. Certification shall be included as a deliverable to the contracting agency before contract award. TDEC course information can be found and is offered through Tennessee Department of Environmental and Conservation Web site: http://www.state.tn.us/environment/wpc/wpcppo/training/
5. A professional engineer licensed in the state of KY and/or TN qualified by education and experience to perform the necessary hydrologic and hydraulic calculation shall be used for the design or approve the design of a permanent or temporary basin, if required.

3.2 Design Hydrology

Erosion and sediment controls shall be designed to control runoff from a design storm of 4.5 inches of rainfall within a 24-hour time period.

3.3 Pre-Construction

No land/soil disturbing activity may begin until the following conditions have been met:

- Erosion and sediment controls are in place and functional.
- Storm Water Inspection Program and qualified person are in place.
- Site specific Storm Water Pollution Prevention Plan for a 5-year 24-hour storm event (4.5 inches of rain/24hours) is complete and is on site or readily available.
- State Permit NOI is properly filled out, signed by the primary contractor and displayed on site or available when requested.

Pre-construction vegetative groundcover will not be destroyed, removed, or disturbed more than 20 calendar days prior to grading or earthmoving unless temporary cover is installed (i.e. seeding and mulching).

Other temporary controls can be installed or adequate BMPs can be implemented to retain sediment on site. Temporary erosion control measures may be removed at the beginning of the workday, but shall be replaced at the end of the day.

Structural measures for this phase of construction may include temporary silt fencing, filter barriers, hay bales, dumped rock, etc.

Twice-a-week and after rain event inspections are performed to ensure proper storm water release.

3.4 Erosion & Sediment Control

Storm water runoff controls for the proposed project will consist of the structural control measures themselves and the maintenance and inspection practices discussed in this Plan. They shall be designed to retain sediment on the project site. The Contractor will be responsible for the implementation and execution of all storm water runoff controls.

Erosion and sediment control measures shall be appropriate for the actual site conditions. In addition, the appropriate schedule of implementation shall be the contractor's responsibility. Particular attention is required for concentrated storm water flows. Either concentrated storm water flows shall be avoided or the conveyance system shall be protected sufficiently to prevent significant erosion. Sediment trapping devices are required at all points where storm water leaves a site laden with sediment. Erosion and sediment measures include but are not limited to the following:

1. Erosion prevention on denuded areas
2. Non-structural management practices to be implemented
3. Perimeter controls
4. Permanent storm water conveyance structures
5. Final stabilized conditions of the site
6. Provision for removing temporary control measures
7. Stabilization of the site where temporary measures are removed
8. Maintenance requirements for temporary management practices
9. Maintenance requirements for any permanent measures
10. Storm water inlets shall be protected to ensure only storm water enters.
11. Land/soil disturbed areas shall be mulched/stabilized as needed to prevent erosion and sediment loss.

<u>Construction Entrance(s)</u>

Entry and exit roads at the construction site shall be protected to control sediment from leaving the site. Contractor shall utilize Number 1 to Number 3 size stone, at least 6-inches thick and 50-feet long. Exceptions to the 50-foot length requirement may be alloyed by the contracting agency depending on the size of construction site. Permanent stabilization methods for entry and exit roads are required. Street sweeping may be required to clean up sediment and/or any soils that accumulate at entry and exit roads locations.

Adjacent Roadways

The contractor shall establish and maintain a proactive method to prevent the off-site migration or deposit of sediment on roadways used by the general public.

Utility Installation and Construction

Utility installation/construction projects shall compact, shape, and apply permanent stabilization to the disturbed soil within 7 working days of completed linear section. Completed linear section of utility is achieved when the utility has been installed and covered with soil. Erosion and sediment controls will be implemented as necessary during utility installation/construction to ensure sediment does not leave the site.

Clearing and Grubbing

Clearing, grubbing and other disturbances to riparian vegetation shall be limited to the minimum necessary for grading, slope construction and equipment operation. Unnecessary vegetation removal is prohibited. Construction shall be sequenced to minimize exposure time of denuded areas, and all disturbed areas shall be properly stabilized as soon as possible.

Stabilization practices for this phase of construction consist mainly of temporary seeding and mulching of areas that have been cleared on which earth-disturbing activities will not resume within fifteen days.

Structural measures for this phase of construction include temporary silt fencing, filter barriers, hay bales, etc., as shown on the typical drawings presented in Appendix D.

Sinkhole and Drainage Well Information

Sinkholes must be protected from soil, sediment, or any pollutant entering them. Contractor shall immediately notify DPW Engineering and/or DPW Environmental should a sinkhole be found during construction. Do not fill any sinkhole without written approval from Fort Campbell DPW Environmental Division.

Construction on Stream Banks and in Streams

Construction on stream banks and in streams is not authorized or allowed without special permits or prior written approval from DPW or the contracting agency. Contractor shall contact the DPW Environmental Division, Conservation Branch to determine and obtain the proper permits.
Reference:

40 CFR 301-303, 306,307
TN: Aquatic Resource Alteration Permit, TN Rule 1200-4, ARAP 401, 404
KY: KAR 401 Water Quality Certification

Soil materials must be prevented from entering waters of the State. Erosion and sedimentation control measures to protect water quality must be maintained throughout the construction period. Structural measures for this phase include detention basins, silt fencing and hay bales. Hay bales and/or silt fencing must be installed along the base of all fills and cuts, on the down gradient side of stockpiled soil, and along stream banks in cleared areas to prevent sediment migration into

streams. They must be installed on the contour, entrenched and staked, and extending the full width of the area to be cleared. See typical drawings presented in Appendix D for construction details.

Storm water must be held in settling basins until at least as clear as the receiving waters. Settling basins shall not be located closer than 20 feet from the top bank of a stream (or 60-feet from the top bank of an impaired or high quality stream). Settling basins and traps shall be properly designed according to the size of the drainage areas or volume of water to be treated.

Discharges into Impaired or High Quality Streams

Discharges into impaired or high quality streams will require additional erosion and sediment controls. Construction activities near or adjacent to an impaired or high quality stream will require protection of a minimum of 60-foot natural riparian buffer zone between the stream and the disturbed construction area. In addition, for an outfall in a drainage area of a total of 5 or more acres, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 5-year, 24-hour storm and runoff from each acre drained, or equivalent control measures, shall be provided until final stabilization of the site.

Off-site Storm Water

All surface water flowing toward the excavation or fill work shall be diverted through utilization of berms, flumes, diversion channels with sand bag berms, diversion pipes, or in some cases cofferdams. Temporary diversion channels must be protected by non-erodible material.

Grading and Excavation

Permanent or temporary soil stabilization shall be applied as soon as possible but in no case later than 7 days after final grade is reached on any portion of the site except as follows:

- Where stabilization measures by the seventh day are precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as possible.
- Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 15 days, temporary stabilization measures do not have to be initiated on that portion of the site.

The site is required to retain sediment through other BMPs when these soil conditions exist until permanent or temporary soil stabilization can be implemented.

Temporary or permanent soil stabilization shall be accomplished within 15 days after final grading or other earthwork. Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable.

Soil stabilization refers to measures that protect soil from the erosive forces of raindrop impact and flowing water. Applicable practices include but are not limited to temporary or permanent vegetative establishment, mulching, sod application, vegetative buffers, rock buffers, and the early application of gravel base on areas to be paved. Selected soil stabilization measures shall be appropriate for the time of year, site conditions, and estimated duration of use.

Soil stockpiles shall be stabilized if left undisturbed for 7 or more days. Stabilization measures shall include but are not limited to: covering the stockpile with erosion control mat, tarp or plastic, or temporary seed cover and straw the stockpile. Soil stockpiles shall be protected with sediment trapping measures that may include sediment traps or detention ponds to prevent soil loss from the project site throughout the life of the soil stockpiling practice.

Stabilization practices for this phase of construction consist mainly of temporary seeding and mulching of areas that have been cleared on which earth-disturbing activities will not resume within fifteen days.

Structural measures for this phase include installing hay bales, silt fence and filter barriers along the base of all cuts and fills.

Seeding and Sodding

A permanent vegetative cover shall be established on all denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved which shall be stabilized to 95% with established permanent vegetation or sod. This process in part is needed to permanently control erosion and sediment from leaving the site after construction is complete and allows DPW Environmental Division/Contracting Agency to perform state required Notice of Termination (NOT) for the site.

Final Stabilization

All permanent structural practices will have been completed at this phase of the project. After final stabilization has been achieved, all silt fencing and temporary slope drains will be removed to prevent it from becoming a pollutant, and properly disposed.

Section 4

Other Items Requiring Control

4.1 Construction Materials

Construction materials that are anticipated to be present at this construction site shall be identified on the Contractor's Form (Section 1). Areas designated for storage of the materials shall be identified on the site drawing included in Appendix C.

Stockpiled erodable construction materials will be secured by control measures down gradient of the stockpiles. Non-erodable materials will be picked up to prevent them from polluting storm water.

4.2 Waste Materials

Waste material (earth and rock) not required for the construction of the project shall not be stockpiled on-site. The contractor shall not dispose of any material in a regulatory floodway, sinkhole, wetland or any area that shall cause impairment of any waters of Fort Campbell.

Borrow and waste disposal areas shall be located in upland (non-wetland) areas and above the 100-year Federal Emergency Management Agency floodplain. Borrow and waste disposal areas shall not affect any waters of the State/U.S./Fort Campbell and shall be above ordinary high water of any adjacent watercourse.

4.3 Other Materials

The Contractor shall take appropriate steps to ensure that petroleum products or other chemical pollutants are prevented from entering waters of the State/U.S. All equipment refueling, servicing, and staging areas shall comply with all local, state, and federal laws, rules, regulations, and ordinances; including those of the National Fire Protection Association (NFPA). Appropriate containment measures for these areas shall be utilized. All spills must be reported immediately to the Fort Campbell Directorate of Public Works, and measures shall be taken immediately to prevent the pollution of waters of the State/U.S., including groundwater, should a spill occur.

Soils at fueling stations should be checked daily for signs of spillage or staining of the soil. Any fixed fueling station/tank storage shall have a containment system to prevent runoff by potential spills or tank rupture. Machinery should be serviced or repaired to prevent leaks of fluids from construction machinery.

The Contractor will be responsible for compliance with all applicable EPA guidelines regarding equipment related fluids as well as all National Fire Protection Association regulations regarding flammable liquids.

4.4 Non-Storm Water Discharges

The following non-storm water discharges have potential for occurring from the site during the construction period:

1. Groundwater may be intercepted during the construction of this project. While these locations are yet unknown, the Plan will be modified to incorporate these areas should they arise.
2. Pavement wash waters (where there have been no spills or leaks of toxic or hazardous materials).
3. Dust suppression water.
4. Water used to wash vehicles containing oil, grease, antifreeze, etc., (where detergents are not used and detention and/or filtering shall be provided before the water leaves the site).

All non-storm water discharges will be directed to stable settling basins prior to leaving the site outfall. Wash down or waste discharge of concrete trucks will not be permitted on-site unless a proper settlement area has been constructed in accordance with state and federal regulations.

4.5 General Storm Water Quality Measures

The Contractor shall establish and maintain a proactive method to prevent litter, construction debris, and construction chemicals from entering waters of the State/U.S.

Locations where vehicles enter and exit the site shall be inspected for evidence of off-site roadway sediment tracking.

Low lying areas shall not be used as equipment storage, staging, or transportation areas.

If sediment escapes the construction site, off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize offsite impacts. No work in streams is allowed with out special permit approval.

Section 5

Storm Water Management

5.1 Storm Water Management Systems

Adequate storm water management systems shall be designed to accomplish the following:

1. Account for both off-site and on-site storm water
2. Maintain natural topographic divides
3. Convey erosion and sediment controlled storm water to a stream, natural channel, or other existing facility
4. Discharge erosion and sediment controlled storm water into the natural channel by connecting the channel at natural elevations, or by discharging the storm water into an existing facility of sufficient capacity to receive it
5. BMPs will require periodic maintenance to ensure proper performance

5.2 Required Records

The Contractor will maintain at the site the following records of construction activities:

1. The dates when major grading activities occur;
2. The dates when construction activities temporarily or permanently cease on a portion of the site;
3. The dates when stabilization measures are initiated; and
4. Daily rainfall amounts
5. Required Inspection Records/Reports

The Fort Campbell Directorate of Public Works, Environmental Division will retain copies of storm water pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date the Notice of Termination is filed.

5.3 Maintenance

Inspection and maintenance of erosion and sediment control structures is to be performed on a regular basis throughout the life of the project. Inspections of erosion and sediment control measures shall be done before anticipated storm events (or series of storm events such as intermittent showers over one or more days), within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once per week.

It is recommended that the Contractor install a rain gauge on-site and maintain it in good working condition. The Contractor shall record daily precipitation amounts on the project and provide this information to the Fort Campbell Directorate of Public Works on a monthly basis.

Outfall points shall be inspected by the contractor to determine whether erosion and sediment control measures are effective in preventing siltation impacts to surrounding waters. Upon conclusion of the inspections, erosion and sediment control measures found to be ineffective shall be repaired, replaced, or modified before the next rain event, if possible, but in no case more than seven days after the condition is identified.

Sediment shall be removed from sediment control structures when the design capacity has been reduced by fifty percent. Sediment removed from sediment control structures shall be placed and be treated in a manner so that the sediment is contained within the project limits and does not migrate into waters of the State/U.S. During sediment removal, the Contractor shall take care to ensure that structural components of erosion control structures are not damaged and thus made ineffective. If damage does occur, the Contractor shall replace the structures at the Contractor's own expense.

The Contractor shall establish and maintain a proactive method to prevent the off-site migration or deposit of sediment on roadways used by Fort Campbell residents and the general public. Locations where vehicles enter and exit the site shall be inspected for evidence of off-site roadway sediment tracking.

Whenever there is a change in the scope of work of the project, which would be expected to have a significant effect on the discharge of pollutants to the water of the state and which has not otherwise been addressed the SWPPP will be modified.

5.4 Enforcement

If at any time it is determined by government representatives that the property owner/proponent or designated construction site inspector/manager is not preventing erosion and sediment control from leaving the site, additional controls shall be implemented immediately to correct at Contractor's expense.

If government representatives determine that adequate inspections and maintenance procedures are not being implemented, or the controls as designed are not meeting control performance objectives presented in this plan, or they violate state regulations, then government representatives shall issue a Stop Work Order until adequate controls are meet.

5.5 Required State Inspection Form

The contractor shall perform storm water inspections a minimum of twice-a-week and after a rain fall event of .5 inches or greater of rain in a 24 hours period for each construction site. See instructions in Item 5 of Fort Campbell's TN/KY Construction Storm Water Inspection Report Form (See Appendix E). This form shall be maintained on site or readily available to government inspection agencies upon request. **A copy of the storm water inspection form shall be delivered each month (or sooner if contract is shorter) attached to the monthly invoice to the contracting agency or Fort Campbell's Environmental Storm Water Division located at 13 ½ Street building 2182 Fort Campbell, KY.**

5.6 Notice of Termination

Site shall be 95% stabilized to design requirements. Warranty period is in place until contractor meets the 95% stabilization requirement for internal NOT requirement and requires three way concurrences by DPW Environmental Division, contracting agency, and design engineer to verify site is in compliance with NOT. A contractor cannot be relieved of completion of NOT without final stabilization unless the contracting agency has agreed to assume responsibility for final stabilization of the site in writing.

Appendix A

Site Location Map

Contractor's Checklist

- ✓ **Identify the location of at least one benchmark, Indicated with the proper elevation.**

- ✓ **A map of the site must be included with the SWPPP with the proposed construction area clearly outlined. SWPPPs for linear projects must specify the location of each end of the construction area. The map should outline the boundaries of the projects, developments and the construction site in relation to major roads, streams or other landmarks. The map should identify all outfalls where runoff will leave the property. Streams(s) receiving the discharge, and storm sewer system(s) conveying the discharge from all site outfalls should be clearly identified and marked on the map. An 8 ½ by 11 inch excerpt from the appropriate 7.5 minute United States Geological Survey (USGS) quad map, with the site centered, is preferred. This map can be incorporated in the site drawing in Appendix C.**

Appendix B

Existing & Proposed Conditions

Contractor's Checklist

- ✓ **Drawing shall be a minimum of one 8 ½" x 11" sheet.**
- ✓ **Existing and Proposed Conditions may be presented on one plan sheet by distinguishing the two by light (__point) and heavy (__point) line weights, respectively.**
- ✓ **Plan scale shall be no less than 1" (one inch) = 100' (one hundred feet).**
- ✓ **Site plan shall include existing and proposed contours (2' intervals), buildings and paving. Also include any existing and proposed (permanent) storm water management structures on the property and include size, type, slope and invert elevation of the structures, as required to meet the objectives.**
- ✓ **Drawing will be labeled to identify the site name.**

Appendix C

Sediment & Erosion Control Plan

Contractor's Checklist

- ✓ **Drawing shall be a minimum of one 8 ½" x 11" sheet**
- ✓ **Identify on site plan all temporary erosion and sediment control measures to be implemented during construction. See site map requirements at Appendix A**
- ✓ **Plan scale shall be no less than 1" (one inch) = 100' (one hundred feet).**
- ✓ **Identify location of all outfall points for storm water discharges from the site.**

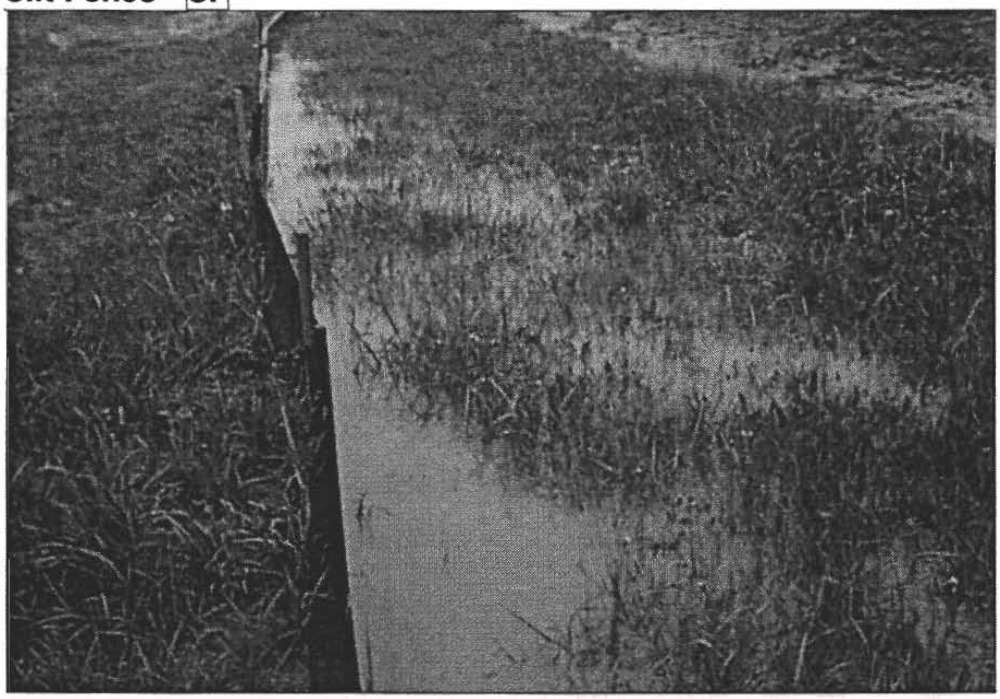
Appendix D

Specifications, BMPs and Typical Drawings

Contractor's Checklist

- ✓ **The following pages are specifications, BMPs and typical drawings for proper installation of stone pads, wash racks, check dams, silt fences, and straw bales. These are standard specifications and depending on topography of the construction site, installation can be altered to ensure erosion and sediment control is established, inspected, and maintained.**

Silt Fence - SF



DEFINITION
A silt fence is a temporary sediment barrier made of woven, synthetic filtration fabric supported by steel or wood posts.

PURPOSE
The purpose of a silt fence is to prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition of sediment at the structure. Silt fencing encourages sheet flow and reduces the potential for development of rills and gullies.

CONDITIONS
Silt fence should be installed where sheet flow runoff can be stored behind the barrier without damaging the barrier or the submerged area behind the barrier.

Silt fence should be not be installed across streams, ditches, waterways, or other concentrated flow areas.

DESIGN CRITERIA
All silt fence should be installed along the contour, never up or down a slope.

Where all sheet flow runoff is to be stored behind the fence (where no storm water disposal system is present), maximum slope length behind a silt fence should not exceed those shown in Table 1. The drainage area should not exceed 1/4 acre for every 100 feet of silt fence

Criteria for Silt Fence Placement

Land Slope (percent)	Maximum Slope Length Above Fence (feet)
<2	100
2 to 5	75
5 to 10	50
10 to 20	25
>20	15
* In areas where the slope is greater than 20%, a flat area length of 10 feet between the toe of the slope and the fence should be provided.	

Type A Silt Fence - This 36-inch wide filter fabric should be used on developments where the life of the project is six months or greater. See Figure 1.

Type B Silt Fence- Though only 22-inches wide, this filter fabric allows the same flow rate as Type A silt fence. Type B silt fence should be limited to use on minor projects, such as residential home sites or small commercial developments where permanent stabilization will be achieved in less than six months. See Figure 2.

Type C Silt Fence- Type C fence is 36-inches wide with wire reinforcement. The wire reinforcement is necessary because this fabric allows almost three times the flow rate as Type A silt fence. Type C silt fence should be used where runoff flows or velocities are particularly high or where slopes exceed a vertical height of 10 feet. See Figure 3.

Along stream buffers and other sensitive areas, two rows of Type C silt fence may be used.

Table 2 contains specific information concerning specification requirements for all three types of material.

CONSTRUCTION SPECIFICATIONS

Silt fence should be placed on the contour. On slopes with grades greater than 7%, the silt fence should be located at least 5 to 7 feet beyond the base. Turn the ends of the silt fence upslope so that a certain depth of storm water may be retained in front of the silt fence. The impounded depth should be at least 12 inches, but no more than the height of the silt fence. Hay or straw bales should be staked in place at the end of the row of silt fence as an emergency overflow. This will allow detained water, exceeding the capacity of the silt fence, to be filtered and released quickly (see Figure 4) **The bottom edge of silt fence must be entrenched and backfilled to be effective.**

The silt fence should be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter cloth should be spliced together only at a supporting post, with a minimum 6-inch overlap, and securely sealed. See Figure 5 for splicing requirements.

Post installation should start at the center of the low-point (if applicable) with remaining posts spaced 6 feet apart for Type A and B silt fences and 4 feet apart for Type C silt fence. While Type A and B silt fences can be used with both wood and steel posts, 36-inch steel posts should be used with Type C slit fence due to the flow capacity of the fabric. See Table 3, for post size and fasteners requirements. See Figure 6 for fastener placement.

INSPECTION

Inspect silt fence before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once every fourteen calendar days. Where sites have been finally or temporarily stabilized, such inspections may be conducted only once per month.

MAINTENANCE

Sediment should be removed once it has accumulated to one-half the original height of the barrier. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months). Silt fence should remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

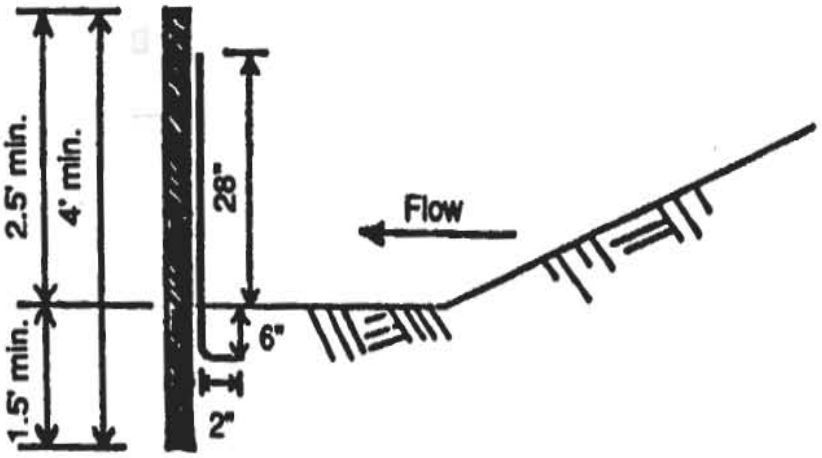
Silt Fence Specifications

TYPE FENCE	A	B	C
Tensile Strength (Lbs. Min.) (1) (ASTM D-4632)	Warp - 120 Fill - 100	Warp - 120 Fill - 100	Warp - 260 Fill - 180
Elongation (% Max.) (ASTM D-4632)	40	40	40
AOS (Apparent Opening Size) (Max. Sieve Size) (ASTM D-4751)	#30	#30	#30
Flow Rate (Gal/Min/Sq. Ft.) (GDT-87)	25	25	70
Ultraviolet Stability (2) (ASTM D-4632 after 300 hours weathering in accordance with ASTM D-4355)	80	80	80
Bursting Strength (PSI Min.) (ASTM D-3786 Diaphragm Bursting Strength Tester)	175	175	175
Minimum Fabric Width (Inches)	36	22	36

(1) Minimum roll average of five specimens.
(2) Percent of required initial minimum tensile strength.

Table 2

Silt Fence – Type A



SIDE VIEW

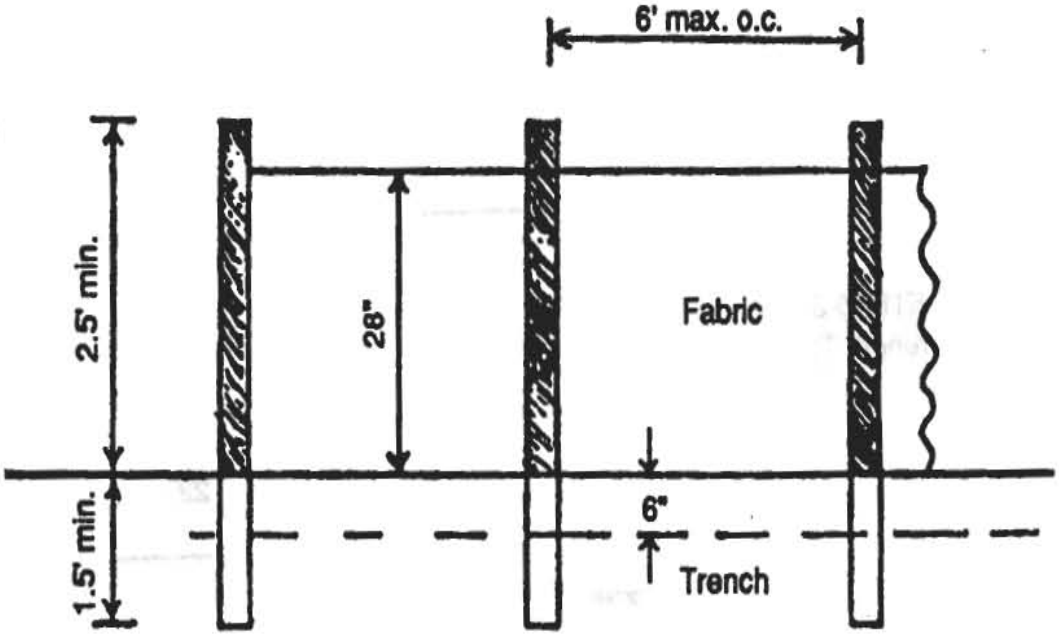
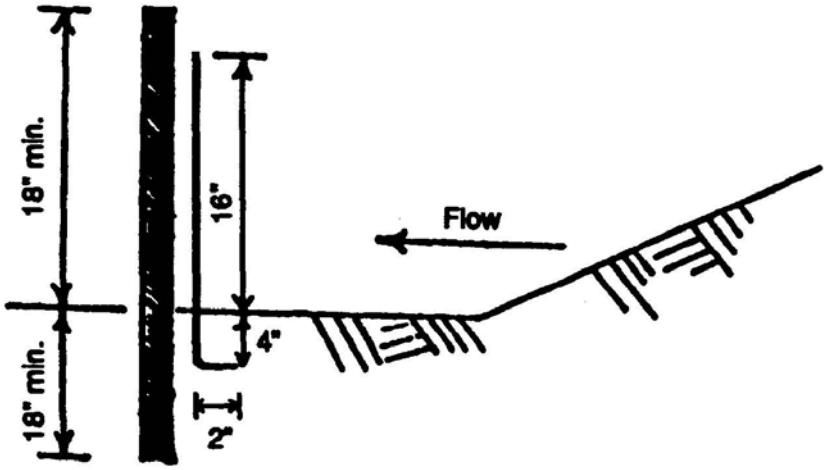


FIGURE 1

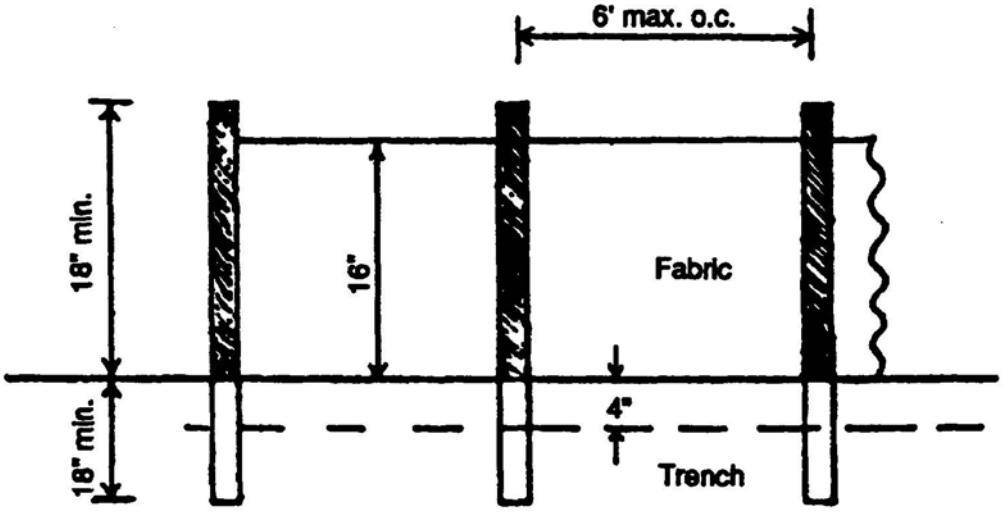
FRONT VIEW

Figure 1

Silt Fence – Type B



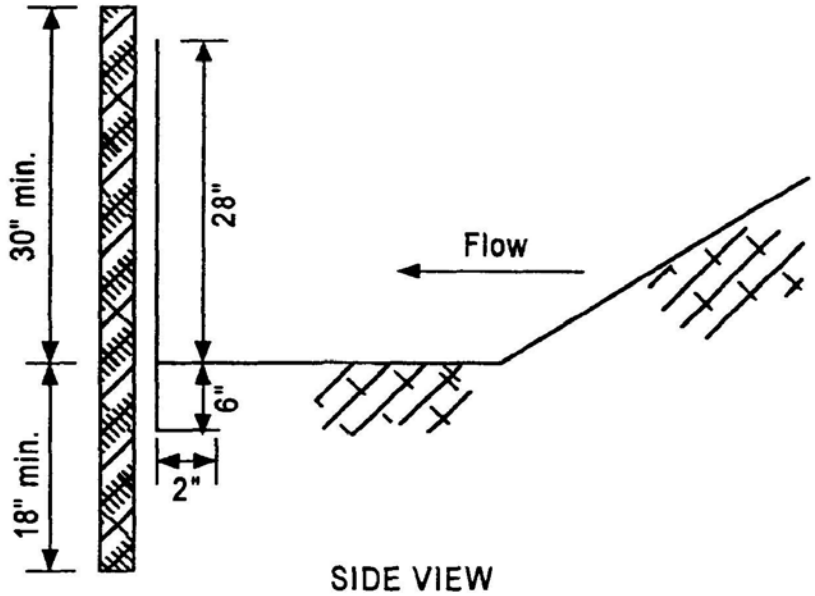
SIDE VIEW



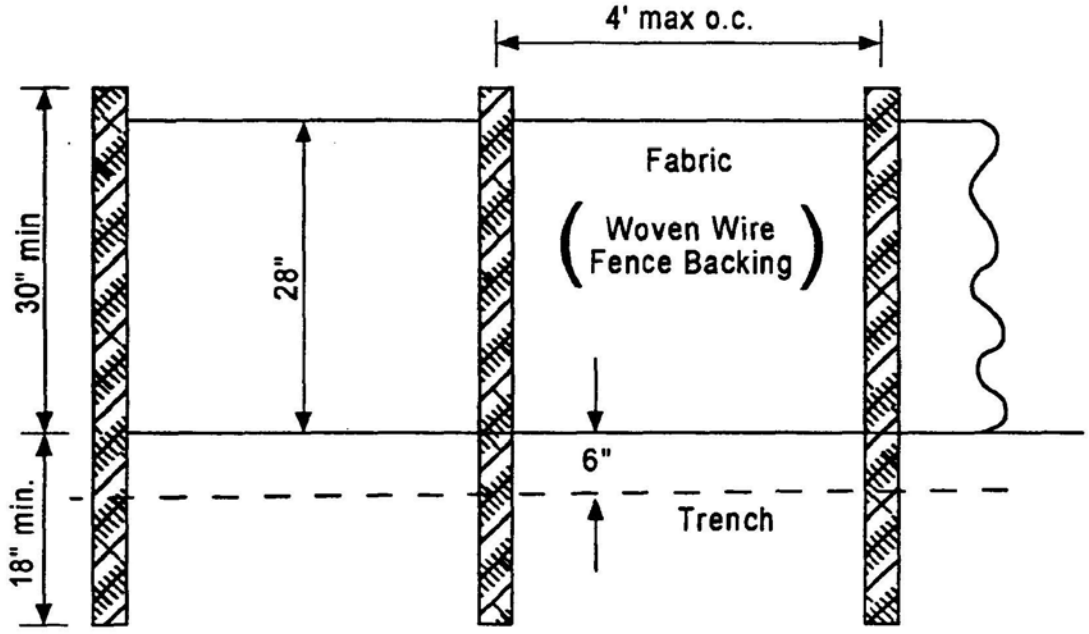
FRONT VIEW

Figure 2

Silt Fence – Type C



SIDE VIEW



FRONT VIEW

Figure 3

Silt Fence Below a Steep or Long Grade

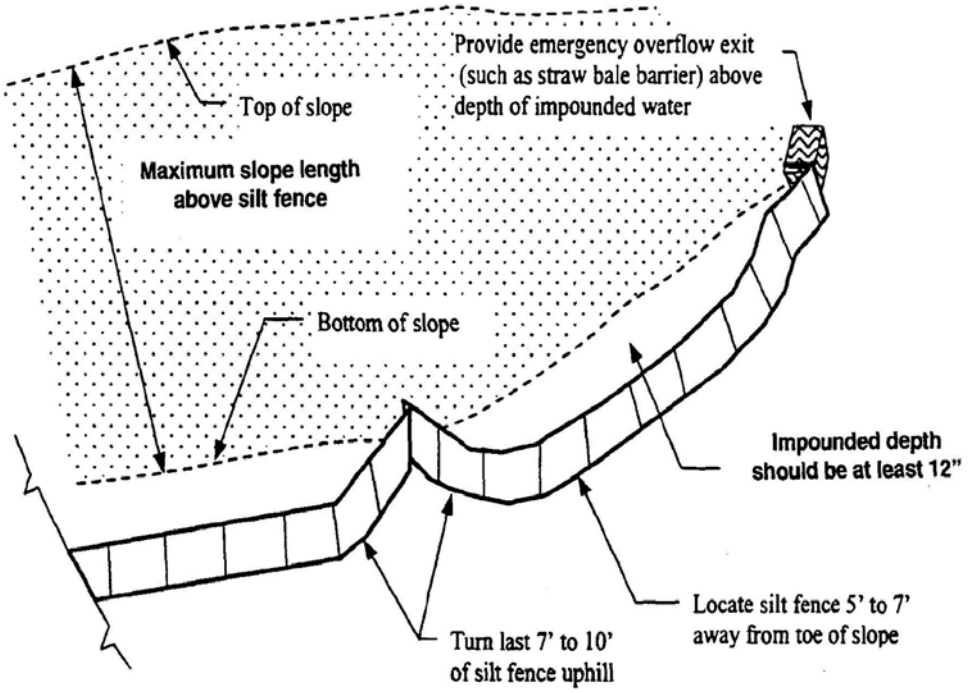


Figure 4

Source: Knoxville Engineering Department

Joining Silt Fence Sections

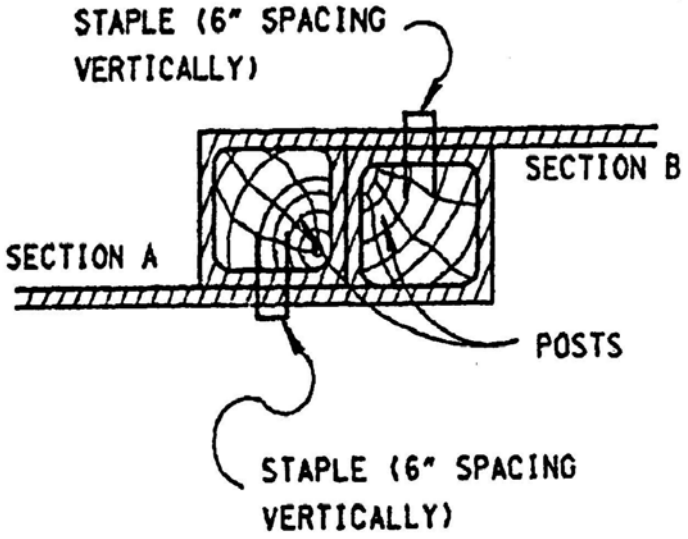


Figure 5

Post Size and Fastener Requirements

POST SIZE

	Minimum Length	Type of Post	Size of Post
Type A	4'	Soft wood Oak Steel	3" dia. or 2x4 1.5" x 1.5" 1.3lb./ft. min.
Type B	3'	Soft wood Oak Steel	2" dia. or 2x2 1" x 1" .75lb./ft. min.
Type C	4'	Steel	1.3lb./ft. min.

FASTENERS FOR WOOD POSTS

	Gauge	Crown	Legs	Staples/Post
Wire Staples	17 min.	3/4" wide	1/2" long	5 min.
	Gauge	**Length**	**Button Heads**	**Nail/Post**
Nails	14 min.	1"	3/4"	4 min.

Note: Filter fabric may also be attached to the post by wire, cord, and pockets.

Table 3

Fastener Placement

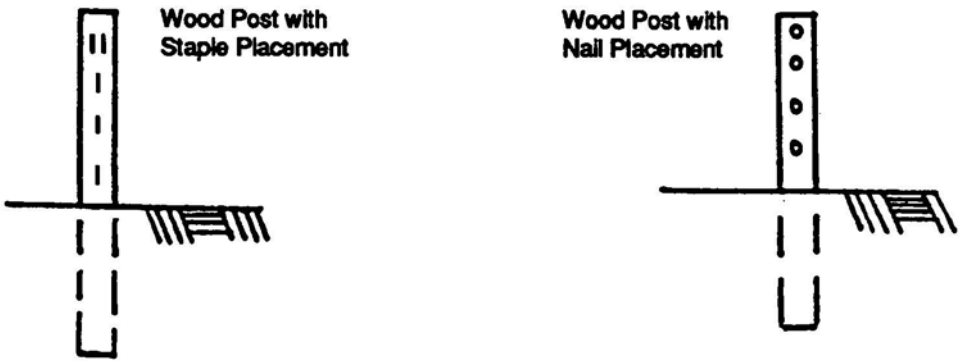


Figure 6

Construction Exit - CE

DEFINITION

A stone-stabilized pad located at any point where traffic will be leaving a construction site to a public roadway.

PURPOSE

To reduce or eliminate the transport of material from the construction area onto a public roadway.

CONDITIONS

This practice is applied at approximate points of construction egress. Geotextile underliners are required to stabilize and support the pad aggregates.

DESIGN CRITERIA

Formal design is not required. A typical construction exit is shown in Figure 1. The following standards should be used:

Aggregate Size: Stone should be #1 or #2 stone (1.5 to 3.5 inch stone). Refer to specification Riprap – RR tables for aggregate size.

Pad Thickness: The gravel pad should have a minimum thickness of 6 inches.

Pad Length and Width: At a minimum, the width should equal full width of all points of vehicular egress, but not less than 20 feet wide. Pad length should be no less than 50 feet.

Washing: If the action of the vehicle traveling over the gravel pad does not sufficiently remove the material, the tires should be washed prior to exit onto public roadways. When washing is required, the wash rack should be designed for the anticipated traffic loads and placed on level ground, on a pad of coarse aggregate. A typical wash rack is shown in Figure 2. The wash rack design may consist of other materials

suitable for truck traffic that remove mud and dirt. The wash rack should have provisions that intercept the sediment-laden runoff and direct it into a sediment trap or sediment basin.

Location: The exit should be located wherever traffic will be leaving a construction site direction onto a public roadway.

CONSTRUCTION SPECIFICATIONS

It is recommended that the exit area be excavated to a depth of 3 inches and be cleared of all vegetation and roots.

Waterbar Diversion: On sites where the grade toward the public roadway is greater than 2% a waterbar diversion 6 to 8 inches high with 3:1 side slopes should be constructed across the foundation of the construction exit to prevent storm water runoff from leaving the site.

Diversion: Diverted runoff should be directed into a sediment trap or sediment basin.

Geotextile: The geotextile under-liner must be placed the full length and width of the exit.

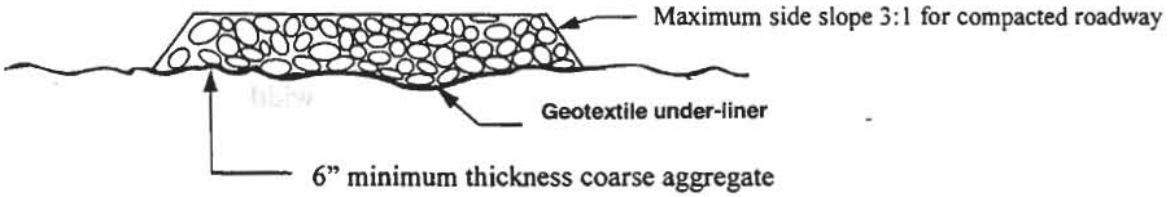
INSPECTIONS

Inspections of construction exit should be made at the end of each shift or workday.

MAINTENANCE

The exit should be maintained in a condition that will prevent tracking or flow of material onto public rights-of-way. This may require periodic top dressing with fresh stone, as conditions demand, and repair and/or cleanout of any structures to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

Construction Exit



SECTION A-A

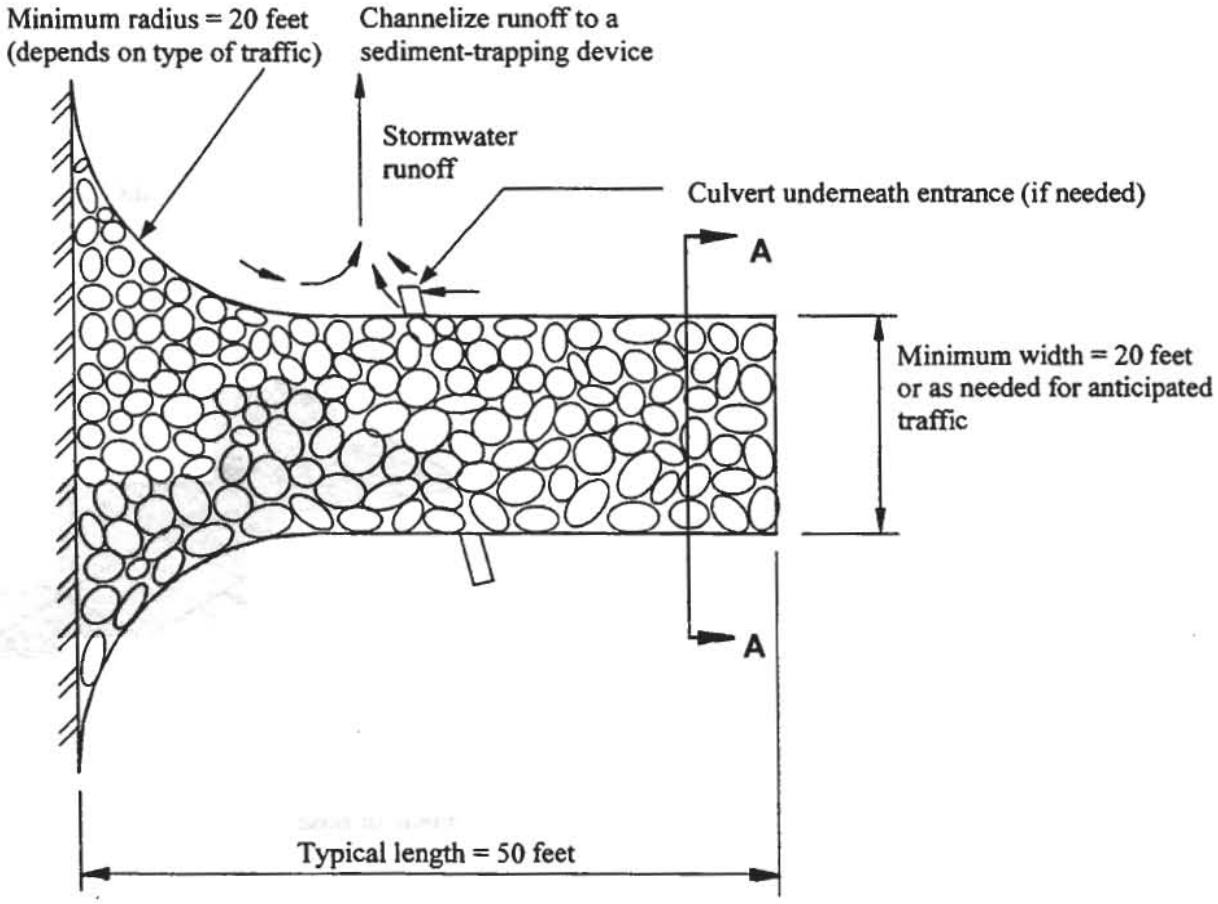
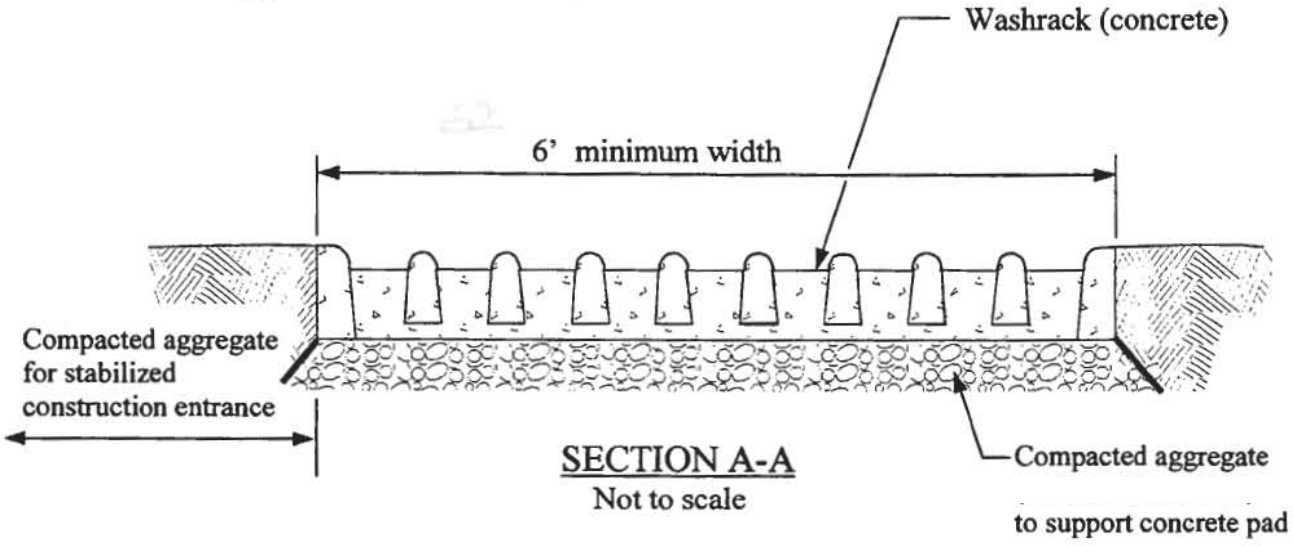
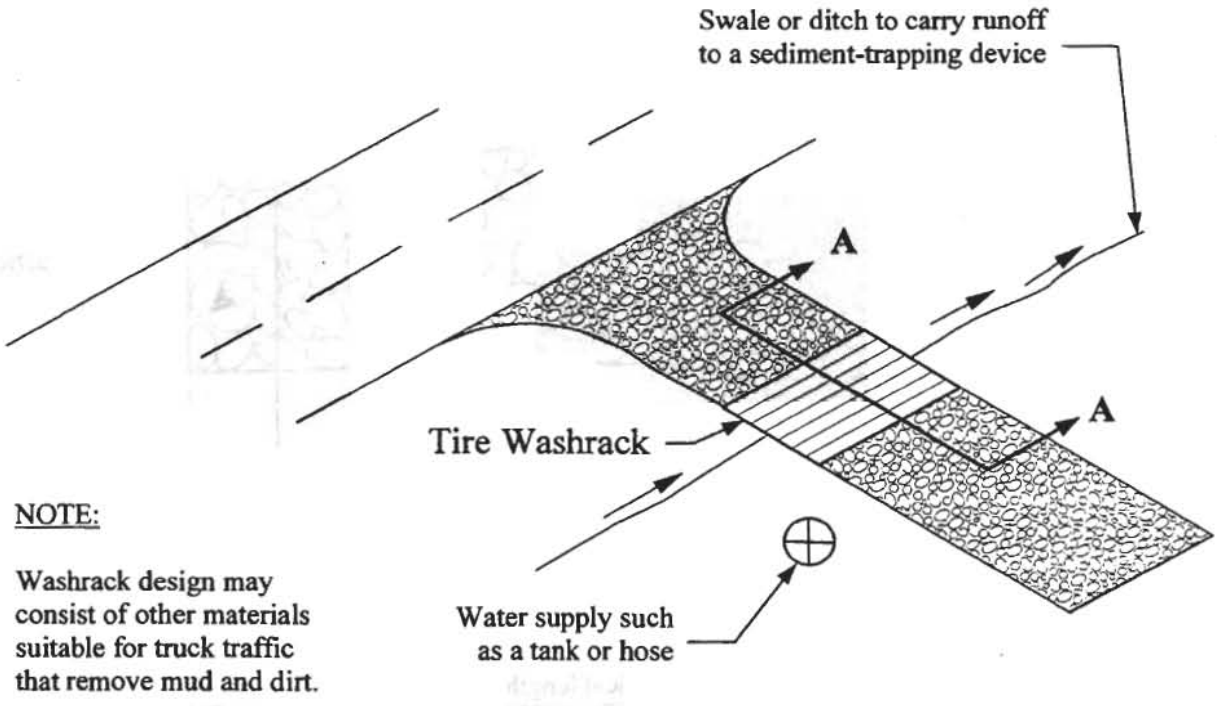


Figure 1

Typical Washrack for Construction Exit





NOTE:

Washrack design may consist of other materials suitable for truck traffic that remove mud and dirt.

Figure 2

Check Dam - CD

DEFINITION

Small temporary barrier, grade control structure, or dam constructed across a swale, drainage ditch, or area of concentrated flow.

PURPOSE

To minimize the erosion rate by reducing the velocity of storm water in areas of concentrated flow, and to capture larger soil particles.

CONDITIONS

This practice is applicable for use in small open channels and is **not to be used in a stream**. Specific applications include:

- Temporary or permanent swales or ditches in need of protection during the establishment of grass linings.
- Temporary or permanent swales or ditches that, due to their short length of service or for other reasons, cannot receive a permanent non-erodible lining for an extended period of time.
- Other locations where small localized erosion and sedimentation problems exist.

DESIGN CRITERIA

Formal design is not required. The following standards may be used instead:

Drainage Area: For stone check dams, the drainage area should not exceed one acre. For rock check dams, the drainage area should not exceed five acres.

Spacing: Two or more check dams in series should be used for drainage areas greater than one acre. Maximum spacing between dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam. (See Figure 1)

Height: The center of the check dam should be at least 9 inches lower than outer edges. Dam height should be 2 feet maximum measured to the center of the check dam. (See Figure 2)

Side Slopes: Side slopes should be 2:1 or less. Geotextiles: A geotextile should be used as a separator between the graded stone and the soil base and abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. Geotextiles should be ”set” into the subgrade soils. The geotextile should be placed immediately adjacent to the subgrade without any voids and extend five feet beyond the down stream toe of the dam to prevent scour.

CONSTRUCTION SPECIFICATIONS

The following types of check dams are used for this standard:

Stone Check Dams – CD-S: Stone check dams are constructed from large aggregate (clean of fines) such as TDOT #1 or #2 with a minimum stone size of 1.5 inch. These structures are used for small drainage areas up to 1 acre.

Rock Check Dams – CD-R: Rock check dams are constructed from small riprap such as TDOT Class A-1 (clean of fines) with stone sizes from 2 to 15 inches. These structures are used for drainage areas up to 5 acres. An upstream layer of smaller aggregate may be used for filtering. Rock can be placed by hand or by mechanical methods (no dumping of rock) to achieve complete ditch or swale coverage. Refer to Riprap – RR for riprap and aggregate specifications.

Rock check dams should be keyed into the swale or channel bottom at, typically, a depth of 6 inches. Advantages of keying into the swale or channel bottom are that the check dam will be more stable and less likely to wash out.

A disadvantage of keying into the swale or channel bottom is that the channel will have to be repaired and reshaped whenever the rock check dam is removed.

Sandback Check Dam – CD-SB: Sandbags filled with either aggregate or sand may also be used as a check dam. Sandbags should be staked and tied together, after being placed in a staggered fashion. Provide an overflow weir in the center of the channel similar to the check dam in Figure 2.

INSPECTION

Inspections of erosion control measures should be made before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of .5 inches or greater, and at least once every fourteen calendar days. Where sites have been finally or temporarily stabilized, such inspection may be conducted only once per month.

MAINTENANCE

Sediment should be removed before it reaches a depth of one-half the original dam height. Maintenance needs identified in inspections or by other means should be accomplished before the next storm event if possible, but in no case more than seven days after the need is identified.

If the area is to be mowed, check dams should be removed once final stabilization has occurred. Otherwise, check dams may remain in place permanently. After removal, the disturbed area should be seeded and mulched immediately.

Spacing Between Check Dams

L = The distance such that points A and B are of equal elevation

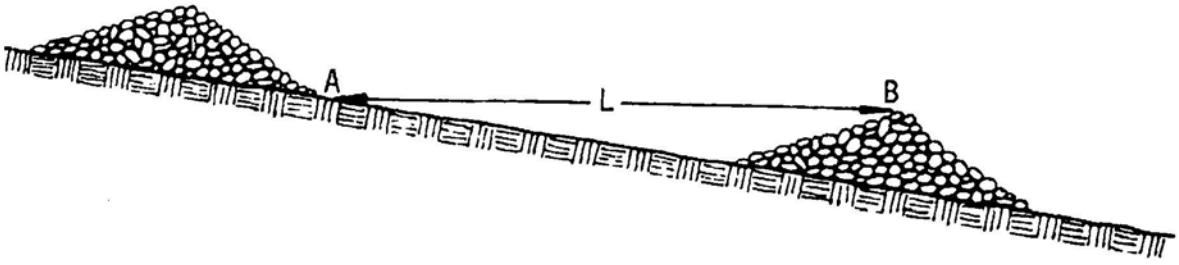
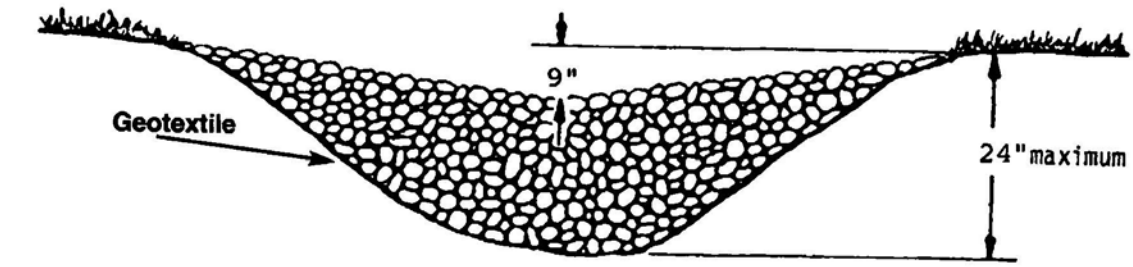


Figure 1

Height Of Check Dams



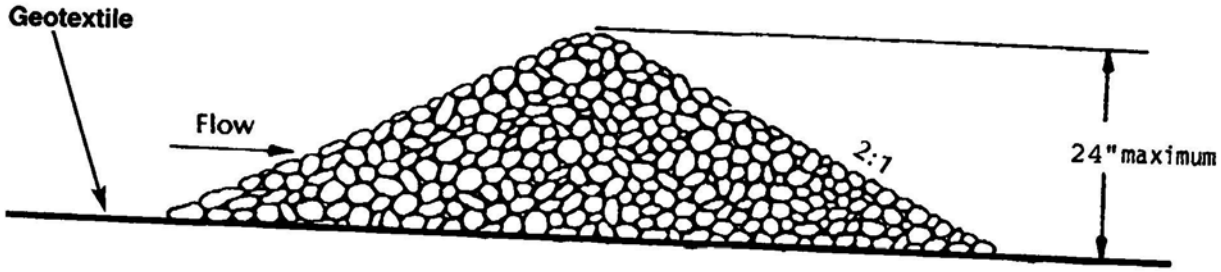
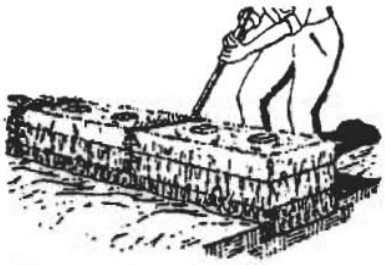


Figure 2

1. Excavate the trench.

2. Place and stake straw bales.



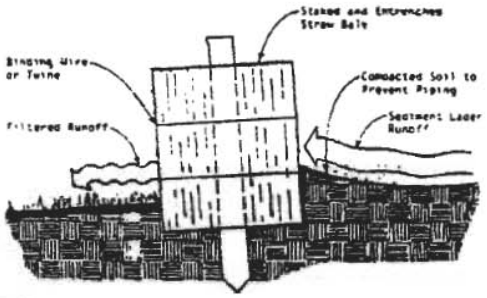
3. Wedge loose straw between bales.

4. Backfill and compact the excavated soil.

CONSTRUCTION OF A STRAW BALE BARRIER

Points A should be higher than point B

PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY



CROSS-SECTION OF A PROPERLY INSTALLED STRAW BALE

Reference: Virginia Soil and Water Conservation Commission (1980)

Details for Placing Straw Bale Barriers

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

Appendix E

Construction
Storm Water Inspection
Report Form

Ft. Campbell, KY Construction Storm Water Inspection Report Form

NPDES Permit No. _____ Notice of Coverage (NOC) Date _____ County _____

Name of Project _____ Project No. _____

Developer and/or Contractor Name _____ Contract No. _____

Outfall No. _____ (or station number, or other identifier of drainage area represented)

Month _____ Year _____						**Month _____ Year _____**						**Month _____ Year _____**					
	Inspections Performed			E&S Controls in Order			Inspections Performed			E&S Controls in Order			Inspections Performed			E&S Controls in Order	
Week 1	Date		Initials		Initials	**Week 1**	Date		Initials		Initials	**Week 1**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 2	Date		Initials		Initials	**Week 2**	Date		Initials		Initials	**Week 2**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 3	Date		Initials		Initials	**Week 3**	Date		Initials		Initials	**Week 3**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 4	Date		Initials		Initials	**Week 4**	Date		Initials		Initials	**Week 4**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 5	Date		Initials		Initials	**Week 5**	Date		Initials		Initials	**Week 5**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	

Information and Instructions

1. The purpose of this form is to report inspections of storm water discharge points and the condition of erosion and sediment controls (E&S Controls) at the construction site.
2. You are required to inspect outfall points (where discharges from the site enter streams or wet weather conveyances) to ascertain whether your erosion control measures are effective in preventing soil from leaving the construction site and entering nearby streams. You are also required to inspect the erosion and sediment control measures being used at the site, whether these controls have been installed according to the storm water pollution prevention plan and whether these controls are in working order. These inspections are required at least twice per week.
3. For each month, space is given for each week of the month. To record the inspections and observations for a week, write the date on which the inspections were performed in the box labeled “Date.” Check the box beside Y or N to indicate if the inspections, both of outfall points and of the erosion and sediment control measures, were performed, and check the box beside Y or N to indicate if erosion and sediment controls are in place and in working order. If N is checked, corrective action must be taken immediately. Sign your initials in space reserved for initials.
4. Submit a copy of this form each week to the Contracting Agency. Continue to use the same form, and submit with original signatures every four months, and/or at the end of the year, and/or when the Notice of Termination is Filed.
5. For discharges identified for additional requirements under part III.F., inspections, described in paragraphs c., d., and e., of the General Permit, shall be performed before anticipated storm events (or series of storm events such as intermittent showers over one or more days), within 24 hours after the end of a storm event of 0.5 inches or greater, and at least twice a week.

(Continued on back. This form when used shall be front and back on one sheet of paper.)

Month _____ Year _____					
	Inspections Performed			E&S Controls in Order	
Week 1	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 2	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 3	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 4	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 5	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	

Rainfall Event Inspections:			
Date	Rainfall Amount	E&S Controls in Order	
			Initials
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	

Provide the following information for the person(s) who have performed and initialed the above inspections. If more than two persons have performed these inspections, give information for the two persons who performed the most numbers of inspections.

Initials:_____	Name_____ Phone No. (_____) _____
Initials:_____	Name_____ Phone No. (_____) _____

Weekly Inspector Comments _____

_____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated information presented. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that inspections of storm water discharge points (outfalls) and of erosion and sediment controls have been performed as recorded in the table above. I certify that erosion and sediment controls in the drainage area of the identified outfall were installed as planned and designed and in working order as recorded in the table above. I am aware there are significant penalties for submitting false information, including the possibility of imprisonment for knowing violations.

Name _____ Title _____ Signature _____

Company _____ Date _____

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 5

Storm Water Pollution Prevention Plan
Greater than 5 Acres

FORT CAMPBELL, KENTUCKY
STORM WATER SEDIMENT AND EROSION CONTROL MANAGEMENT DESIGN STANDARD FOR CONSTRUCTION SITES THAT DISTURB 5 ACRES OR MORE OF LAND/SOIL

PURPOSE:

This document is intended to be used as the Storm Water Pollution Prevention Plan (SWPPP) development standard. SWPPP **shall** require site specific drawings as needed and required map for erosion and sediment control for proper management. The SWPPP is intended to comply with Federal, State, Local, and Fort Campbell, KY requirements. All sites are subject to inspections by Federal, State, Fort Campbell, and Contracting Agencies. The plan when submitted and used is intended for the contractor to ensure the controls used will meet the objectives. The way this plan will be verified to meet the objectives in part is through visual inspection after required rain events, twice-a -week inspections, and other inspections and assessments as required. The SWPPP shall be a stand-alone plan and shall be discussed at all preconstruction meetings.

OBJECTIVES:

- To protect human life and health.
- To comply with Tennessee, Kentucky, and EPA regulations.
- To protect water resources quantity and quality and prevent degradation of these resources.
- To protect and enhance storm water quality at the level of designated use as designated by the states.
- To control erosion and sediment runoff.
- No land/soil disturbing activity may begin until the following conditions have been met:
    - ✓ Erosion and sediment controls in place and functional and are maintained throughout construction period.
    - ✓ Sink holes must be protected from soil, sediment, or any pollutant entering them. Notify immediately DPW Engineering and or DPW Environmental should a sink hole be found during construction. Do not fill any sinkhole without written approval from Fort Campbell DPW Environmental Division.
    - ✓ Contractor shall have a person qualified to perform erosion prevention and sediment control inspections that has current certification through the Tennessee Erosion Prevention and Sediment Control and Certification Program Course or equal. Course information can be found and is offered through Tennessee Department of Environmental and Conservation Web site: http://www.state.tn.us/environment/wpc/wpcppo/training/
    - ✓ Contractor shall have a person qualified to perform erosion prevention and sediment control inspections that has completed either the TDEC or equal. Certification shall be delivered to Contracting Agencies before contract award.
    - ✓ Storm Water Inspection Program and qualified person is in place.
    - ✓ A site specific Storm Water Pollution Prevention Plan for a 5-year 24 hour rain event (4.5 inches of rain/24hours) is complete and is on site or readily available.

- ✓ State Permit NOI is properly filled out, signed by the primary contractor and is displayed on site or available when requested.

- ✓ All sites are subject to inspections by State, Federal, Fort Campbell, and Contracting Agencies.

REQUIREMENTS:

1. Each individual project shall implement sediment and erosion control measures to prevent sediment from leaving the construction site.

2. No construction shall be performed in a manner that will negatively impact the storm water quantity or quality of any waters/streams located on Fort Campbell.

3. All development shall be conducted in a manner which minimizes soil erosion and resulting sedimentation. Under no circumstances is construction to allow sediment to leave a construction site in a way that would be a violation of state regulations. Site specific variables such as topography, soil erodibility, storm water management features, and vegetation shall be considered when implementing sediment and erosion control measures. The exposed area of any disturbed land shall be limited to the smallest practical area for the shortest possible period of time. A rain gauge is recommended to record rainfall events at the site, or use a representative reference site for a record of daily amount of precipitation.

4. Sinkhole and Drainage Well Information: Sink holes must be protected from soil, sediment, or any pollutant entering them. Notify immediately DPW Engineering and or DPW Environmental should a sink hole be found during construction. Storm water controls shall not be designed to discharge into a sinkhole unless proper permits are obtained.

5. Adequate Storm Water Management Systems: Adequate storm water management systems shall be designed and included in the site specific Storm Water Pollution Prevention Plan to accomplish the following:
    a. Account for both offsite and onsite storm water
    b. Maintain natural topographic divides
    c. Convey erosion and sediment controlled storm water management to a stream, natural channel, or other existing facility
    d. Discharge erosion and sediment controlled storm water into the natural channel by connecting the channel at natural elevations, or by discharging the storm water into an existing facility of sufficient capacity to receive it.
    e. Construction must be phased for projects in which 50 acres of land/soil will be disturbed. Areas of the completed phase must be stabilized within 21 days after another phase has been initiated.
    f. Sites that disturb 10 acres of land/soil or more at one time must install a sediment detention basin that provides storage for a calculated volume of runoff from 5-year, 24-hour storm and runoff coefficient [Design Fort Campbell for up to 4.5 inches of rain in a 24-hour period] from each disturbed acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site.
    g. Detention basins may be temporary or permanent depending on site conditions. For drainage locations that serve 10 or more disturbed acres at one time and where a single

temporary sediment basin providing storage as defined per acre drained or equivalent controls are not attainable, multiple, smaller sediment basins and or sediment traps must be used. A professional engineer or architect licensed in the state of KY and or TN qualified by education and experience to perform the necessary hydrologic and hydraulic calculation shall be used for the design or approve the design and SWPPP.

h. Storm water quantity that is currently coming off the site can not be exceeded with new construction and shall be controlled in accordance with Fort Campbell's Low Impact Design requirements.

i. Completed construction site water quality and quantity shall consider the requirements of Fort Campbell's Low Impact Design (LID) requirements when developing the SWPPP. Completed sites require LID.

j. BMPs will require periodic inspections and maintenance to ensure proper performance.

k. Technical Release 55 (TR-55) presents simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs. These procedures are applicable to small watersheds, especially urbanizing watersheds, in the United States. TR-55 is perhaps the most widely used approach to hydrology in the US. Originally released in 1975, TR-55 provides a number of techniques that are useful for modeling small watersheds. Since the initial publication predated the widespread use of computers, TR-55 was designed primarily as a set of manual worksheets. A TR-55 computer program is now available, based closely on the manual calculations of TR-55. TR-55 or other equal methods shall be considered when developing the SWPPP.

l. A map of the site must be included with the SWPPP with the proposed construction area clearly outlined. SWPPPs for linear projects must specify the location of each end of the construction area. The map should outline the boundaries of the projects, developments and the construction site in relation to major roads, streams or other landmarks. The map should identify all outfalls where runoff will leave the property. Streams(s) receiving the discharge, and storm sewer system(s) conveying the discharge from all sites outfalls should be clearly identified and marked on the map. An 8 ½ by 11 inch excerpt from the appropriate 7.5 minute United States Geological Survey (YSGS quad map, with the site centered, is preferred. This map can be incorporated as part of the site drawings or a separate item. (This map section was added for proposed new Tennessee rules.)

6. Erosion & Sediment Measures: Erosion and sediment control measures shall be appropriate for the actual site conditions. In addition, the appropriate schedule of implementation shall be identified. Particular attention is required for concentrated storm water flows. Either concentrated storm water flows shall be avoided or the conveyance system shall be protected sufficiently to prevent significant erosion. Sediment trapping devices are required at all points where storm water leaves a site laden with sediment. Erosion and sediment measures include but are not limited to the following:
    a. Erosion prevention on denuded areas
    b. Non-structural management practices to be implemented
    c. Perimeter controls

d. Permanent storm water conveyance structures
e. Final stabilized conditions of the site
f. Provision for removing temporary control measures
g. Stabilization of the site where temporary measures are removed
h. Maintenance requirements for temporary management practices
i. Maintenance requirements for any permanent measures.
j. Erosion and sediment controls during construction shall be designed to control 4.5 inches of rain fall and runoff in 24 hours (5-year storm event). The construction-phase erosion and sediment controls shall be designed to retain sediment on site.
k. Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than 20 calendar days prior to grading or earth moving unless the area is seeded and/or mulched. Other temporary controls can be installed or adequate BMPs can be implemented to retain sediment on site.
l. Permanent or temporary soil stabilization shall be applied as soon as possible but in no case later than 7 days after final grade is reached on any portion of the site except per the following: Where stabilization measures by the seventh day is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as possible; or where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 15 days, temporary stabilization measures do not have to be initiated on that portion of the site. Site is required to retain sediment through other BMPs when these soil conditions exist until permanent or temporary soil stabilization can be implemented.
m. Temporary or permanent soil stabilization shall be accomplished within 15 days after final grading or other earth work. Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable. Follow permanent soil stabilization requirements/specifications.
n. Soil stabilization refers to measures that protect soil from the erosive forces of raindrop impact and flowing water. Applicable practices include but are not limited to temporary or permanent vegetative establishment, mulching, sod application, vegetative buffers, rock buffers, and the early application of gravel base on areas to be paved. Selected soil stabilization measures shall be appropriate for the time of year, site conditions, and estimated duration of use.
o. Soil stockpiles shall be stabilized if left undisturbed for 7 or more days. Stabilization measures shall include but are not limited to: covering the stock pile with tarp or plastic, or seed and straw the stock pile. Soil stockpiles shall be protected with sediment trapping measures that may include sediment traps or detention ponds to prevent soil loss from the project site throughout the life of the soil stockpiling practice.
p. A permanent vegetative cover shall be established on all denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved which will stabilized 95% with established permanent vegetation or sod designed to establish erosion and sediment control. This process in part is needed to permanently control erosion and sediment from leaving the site after construction is complete and allows permit Notice of Termination (NOT) with the states.
q. If at any time it is determined by DPW or the contracting agency the property owner/proponent or designated construction site is not preventing erosion and sediment

control from leaving the site, additional controls shall be implemented immediately to correct.

r. Controls shall be implemented to a level and until a time in which controls are adequate to control erosion and sediment from leaving the site. If DPW inspectors determine that adequate inspections and maintenance procedures are not being implemented or the controls as designed are not meeting control performance objectives presented in this chapter or violate state regulations then DPW or contracting agency may issue a Stop Work Order until adequate controls are meet.

s. Entry and exit roads at the construction site shall be protected to control sediment from leaving the site. Number 1 to 3 size stone, 6 inches thick and normally a minimum of 50 foot long or could be shorter or longer depending on size of construction site. Street sweeping may be required to clean up sediment and or any soils that accumulate at entry and exit roads or other locations.

t. Utility installation/construction projects shall compact and apply permanent stabilization to the disturbed soil with in 7 working days of completed linear section. Completed linear section of utility is defined as the utility has been installed and covered with soil. This requirement for permanent stabilization may be delayed for actual linear installation for the utility from the main connection to the construction site termination. Erosion and sediment controls will be implemented as necessary during utility installation/construction to ensure sediment does not leave the site.

u. Whenever there is a change in the scope of work of the project, which would be expected to have a significant effect on the discharge of pollutants to the water of the state and which has not otherwise been addressed the SWPPP will be modified.

v. If sediment escapes the construction site, off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize offsite impacts. No work in streams is allowed with out special permit approval.

7. Work on stream banks and in streams: Construction on stream banks and in streams is not authorized or allowed without special permits or prior written approval from DPW or the contracting agency. Contractor shall contact the DPW Environmental Division, Conservation Branch to determine and obtain the proper permits.
   Reference:
   40 CFR 301-303, 306,307
   TN: Aquatic Resource Alteration Permit, TN Rule 1200-4, ARAP 401, 404
   KY: KAR 401 Water Quality Certification

8. Discharges into Impaired or High Quality Streams: Discharges into impaired or high quality streams which have been identified will require additional erosion and sediment controls. Construction activities near or adjacent to an impaired or high quality stream will require protection of a minimum of 60-foot natural riparian buffer zone between the stream and the disturbed construction area. In addition, for an outfall in a drainage area of a total of 5 or more acres, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 5 year, 24 hour storm and runoff from each acre drained, or equivalent control measures, shall be provided until final stabilization of the site.

9. Required state inspection form: Each construction site shall perform storm water inspections twice-a-week or more frequently as instructed in item 5 of Fort Campbell's TN/KY Construction Storm Water Inspection Report Form. A rain gauge located and maintained on

site is recommended for inspections. This form shall be maintained on site or readily available to inspection agencies upon request. **A copy of the twice-a-week storm water inspection form shall be delivered each month to the contracting agency.**

10. Notice of Termination (NOT): When all storm water discharges associated with construction activity are eliminated, the site must be stabilized 95% with established permanent vegetation or sod designed to establish erosion and sediment control. Other engineering controls may be used to permanently establish erosion and sediment control as approved or specified by the contracting agency. Contractors that discharge storm water associated with their construction activity must warrant their work to complete the NOT after completion of their construction activities and final stabilization of the site has been achieved. Warranty period shall be in place until contractor meets the 95% stabilization requirement for internal NOT requirement and requires three way concurrences by DPW Environmental Division, contracting agency, and design engineer to verify site is in compliance with NOT. A contractor cannot be relieved of completion of NOT without final stabilization unless the contracting agency has agreed to assume responsibility in writing for final stabilization of the site.

11. Storm Water Sediment and Erosion Control Information Form and Contractor's Certification: The contractor shall provide all requested information and sign the certification form shown on the following pages.

12. Construction Storm Water Inspection Report Form: Fort Campbell, KY Construction Storm Water Inspection Report Form is located at end of this section.

FORT CAMPBELL, KENTUCKY
STORM WATER SEDIMENT AND EROSION CONTROL INFORMATION FORM FOR CONSTRUCTION SITES THAT DISTURB MORE THAN 5 ACRES OF LAND/SOIL

NPDES Permit No. _____ Notice of Coverage (NOC) Date_____

State_____ County_____

Project No. _____Contract No._____

Name of Project _____

Project Location (latitude)_____ (longitude)_____

Project Location (Address)_____

Project Description_____

_____

Total Area of Site (acres) _____
Total Area of Site that is Expected to be Disturbed by Excavation, Grading or Other Activities (acres) _____
Increase in Impervious Area due to this Project (acres) _____

The Name of the Nearest USGS "blue line" Stream which will Receive Storm Water Runoff from this Site._____

Construction Materials that are Anticipated to be Present at this Construction Site Include:
_____
_____

Other Materials (such as fertilizers, lime, diesel, gasoline, machinery lubricants, etc.) that are anticipated to be present at this construction site shall be listed on a separate document by the Contractor as a part of the Fort Campbell Site Specific Spill Plan.

Name of Storm Water Inspector
_____

Developer and/or Contractor

Name_____

Address _____

Phone _____

Contractor's Certification

I certify under penalty of law that this contractor's form and all required contractor's attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered, evaluated and developed the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for developing the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there may be penalties for submitting false information.

_____
Printed Name

_____
Title

_____
Signature

_____
Date

Ft. Campbell, KY Construction Storm Water Inspection Report Form

NPDES Permit No. _____ Notice of Coverage (NOC) Date _____ County _____

Name of Project _____ Project No. _____

Developer and/or Contractor Name _____ Contract No. _____

Outfall No. _____ (or station number, or other identifier of drainage area represented)

Month _____ Year _____						**Month _____ Year _____**						**Month _____ Year _____**					
	Inspections Performed			E&S Controls in Order			Inspections Performed			E&S Controls in Order			Inspections Performed			E&S Controls in Order	
Week 1	Date		Initials		Initials	**Week 1**	Date		Initials		Initials	**Week 1**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 2	Date		Initials		Initials	**Week 2**	Date		Initials		Initials	**Week 2**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 3	Date		Initials		Initials	**Week 3**	Date		Initials		Initials	**Week 3**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 4	Date		Initials		Initials	**Week 4**	Date		Initials		Initials	**Week 4**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	
Week 5	Date		Initials		Initials	**Week 5**	Date		Initials		Initials	**Week 5**	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐		Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐		Insp. 2		Y☐ N☐		Y☐ N☐	

Information and Instructions

6. The purpose of this form is to report inspections of storm water discharge points and the condition of erosion and sediment controls (E&S Controls) at the construction site.
7. You are required to inspect outfall points (where discharges from the site enter streams or wet weather conveyances) to ascertain whether your erosion control measures are effective in preventing soil from leaving the construction site and entering nearby streams. You are also required to inspect the erosion and sediment control measures being used at the site, whether these controls have been installed according to the storm water pollution prevention plan and whether these controls are in working order. These inspections are required at least twice per week.
8. For each month, space is given for each week of the month. To record the inspections and observations for a week, write the date on which the inspections were performed in the box labeled “Date.” Check the box beside Y or N to indicate if the inspections, both of outfall points and of the erosion and sediment control measures, were performed, and check the box beside Y or N to indicate if erosion and sediment controls are in place and in working order. If N is checked, corrective action must be taken immediately. Sign your initials in space reserved for initials.
9. Submit a copy of this form each week to the Contracting Agency. Continue to use the same form, and submit with original signatures every four months, and/or at the end of the year, and/or when the Notice of Termination is Filed.
10. For discharges identified for additional requirements under part III.F., inspections, described in paragraphs c., d., and e., of the General Permit, shall be performed before anticipated storm events (or series of storm events such as intermittent showers over one or more days), within 24 hours after the end of a storm event of 0.5 inches or greater, and at least twice a week.

(Continued on back. This form when used shall be front and back on one sheet of paper.)

Month _____ Year _____					
	Inspections Performed			E&S Controls in Order	
Week 1	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 2	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 3	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 4	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	
Week 5	Date		Initials		Initials
Insp. 1		Y☐ N☐		Y☐ N☐	
Insp. 2		Y☐ N☐		Y☐ N☐	

Rainfall Event Inspections:			
Date	Rainfall Amount	E&S Controls in Order	
			Initials
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	
		Y☐N☐	

Provide the following information for the person(s) who have performed and initialed the above inspections. If more than two persons have performed these inspections, give information for the two persons who performed the most numbers of inspections.

Initials:_____	Name_____ Phone No. (_____) _____
Initials:_____	Name_____ Phone No. (_____) _____

Weekly Inspector Comments _____

_____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated information presented. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that inspections of storm water discharge points (outfalls) and of erosion and sediment controls have been performed as recorded in the table above. I certify that erosion and sediment controls in the drainage area of the identified outfall were installed as planned and designed and in working order as recorded in the table above. I am aware there are significant penalties for submitting false information, including the possibility of imprisonment for knowing violations.

Name _____ Title _____ Signature _____

Company _____ Date _____

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 6

Low Impact Development
And
Permanent Storm Drainage Systems

Low Impact Development
And
Permanent Storm Drainage Systems

1.0 Policy

The following policies shall be implemented for all new storm drainage system construction within the cantonment area of the Post.

It is the policy of Fort Campbell to reduce storm water peak runoff rates during the design storm event to predevelopment levels. Predevelopment levels are defined herein as the peak rate of runoff that would be produced by the design storm event from native grassland indigenous to the area. New project construction and storm water system design features shall be implemented to insure that post-development storm water runoff does not exceed predevelopment runoff levels.

Project sponsors and their engineers are encouraged to meet with the Directorate of Public Works (DPW) to review the impacts of this policy before proceeding with final design of developments. DPW has the option to deviate from this policy if implementation of the policy, based solely on their judgment, is impractical. No deviation from or waiver of this policy will be allowed without approval of DPW.

The following standards are site specific for Fort Campbell and are designed to work in conjunction with all Army Technical Manuals.

2.0 Rainfall/Design Storm Event

Fort Campbell utilizes the NRCS method based on a 24-hr storm event with various time distributions, depending on the watershed location. The Type II storm distribution is a "typical" time distribution developed by the NRCS from historical rainfall records and will be used for rainfall calculations at Fort Campbell. Complete rainfall records can be found at http://hdsc.nws.noaa.gov/hdsc/pfds/. The following table was developed for Fort Campbell using (36.64149 degrees N) and (–87.44751 degrees W) as the point of investigation.

Precipitation Frequency Estimates (inches)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr
2	0.45	0.72	0.90	1.24	1.56	1.85	2.01	2.46	2.99	3.64
10	0.57	0.91	1.16	1.67	2.18	2.57	2.80	3.46	4.21	5.17
100	0.74	1.18	1.49	2.28	3.14	3.70	4.09	5.20	6.35	7.79

*These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

The Post is divided into two areas: Airfield areas and all other areas. The design storm event for each area is different. Permanent drainage systems in an Airfield area must to be designed to accommodate the 2-yr storm event and permanent drainage systems in all other areas must accommodate the 10-yr storm event, (temporary erosion and sediment controls during construction are designed based on the

5-year, 24-hour storm event). In depth discussion of these criteria and methodology can be found in: Paragraph 3 Section b of *TM 5-820-1*, and Chapter 2 Section 2-2 of *TM 5-820-4*.

3.0 Runoff Factor/Curve Number (CN)

Fort Campbell soils are comprised of mostly Pembroke series soils. The Pembroke soils fall into soil group B of the NRCS Hydrological Soils Classification system. The pre-developed land use of the Post has been defined as native pastures in fair condition. A CN of 61(for native grassland in good condition with 75% cover) shall be used to calculate the predevelopment runoff levels for the Post. Post-development runoff levels will not be allowed to exceed pre-development levels, as per Fort Campbell storm water runoff policy.

4.0 Low Impact Development Strategies and other IMPs

Numerous low impact development (LID) measures and other integrated management practices (IMP) relative to storm water management have been developed nationally to control the rate and quantity of runoff and improve water quality. Each project shall incorporate specific LID strategies or IMPs in order to implement the policies adopted at Fort Campbell and to achieve water quality and reduced runoff rate objectives. While no one technology may be appropriate or applicable to all projects, some measures will be required for all projects. Fort Campbell encourages the implementation of those measures that require minimal operation and maintenance effort. Following is a list of the most common and well-researched IMPs:

- Soil Amendments
- Bioretention
- Filter Strips
- Vegetated Buffers
- Grassed Swales
- Inlet pollution Removal Devices
- Tree Filter Boxes
- Permeable Pavement

Following is a listing of sources of publications describing various LID strategies and IMPs. Other control measures are described in professional journals and accepted design manuals of state and federal agencies. The designer is encouraged to select those measures that will work best within the constraints of their development and still meet the objectives of Fort Campbell.

- UFC 3-210-10 (Unified Facilities Criteria Design: Low Impact Development Manual) Oct. 2004
- *Low-impact Development Design Strategies: An integrated design approach*. Prepared By Prince George's County, MD. June 1999
- Low Impact Development-Technical Guidance Manual For Puget Sound. Publication No. PSAT 05-03. January 2005.

5.0 Permanent Storm Drainage System

The storm drainage system at Fort Campbell consists of all man made and natural structures that convey storm water runoff including: streets, storm drains, piping, detention areas, retention areas, and open channels. To provide for future growth the system must be planned and properly designed to

convey the 2-yr design storm event in airfield areas and 10-yr event in non-airfield areas. This section provides requirements for evaluating and designing the system.

5.1 Pavement Drainage Good roadway drainage practice requires extensive use of roadside ditches and curb and gutter sections in combination with spillways, chutes or storm water inlets for adequate control of surface runoff. Storm inlets or drainage ditches will be designed and located to convey the excess runoff during design storm events. A Manning's "n" value of 0.013 will be used to calculate runoff from paved areas.

Curb and gutters: Curb and gutters must be designed to quickly and effectively convey runoff from pavement to a suitable collection area. Special attention must be paid to roadway intersections, driveway entrances, runways and taxiways

In non-airfield areas flow in the gutter must never exceed 5 inches or overtop curbs, which ever is less. Whenever possible flow across intersections and roadway entrances will be avoided.

In airfield areas shallow, structurally adequate paved gutters adjacent to airfield pavements are frequently required. A sufficient number of inlets must be provided to prevent depth of flow from exceeding 2 ½ inches.

Roadside Ditches: Roadside ditches must be designed to convey the runoff from the design storm without overflowing. Proper slope must be maintained to prevent the ponding of water or erosion of the channel. The ditches should be stabilized using vegetation, riprap, concrete or other suitable materials. Erosion protection will be provided around culverts and storm drain entrances. The channel side slopes and will be designed for easy maintenance and mowing.

5.2 Storm Water Structures

The primary aim of storm water inlets is to limit the amount of water flowing along gutters or ponding at profile sags to quantities that will not interfere with the passage of traffic. This will be accomplished by placing inlets to intercept flows and control spread**.** Drainage inlets will be located to limit the depth or spread on traffic lanes to allowable limits for the design storm event. Grates and inlets will be designed to safely accommodate pedestrian and bicycle traffic where applicable. Inlets will be located so concentrated flow and heavy sheet flow does not cross traffic lanes and will be located just upgrade of pedestrian crossings and locations where pavement slope reverses.

Curb Inlets: Shall be placed and designed in accordance with standards found in: Chapter 3 Section 3-7 of *TM 5-820-3,* and Chapter 3 Section 3-7 of *TM 5-820-4.*

Grate/Drop Inlets: Shall be placed and designed in accordance with standards found in: Chapter 3 of *TM 5-820-3,* and Chapter 3 Section 3-7 of *TM 5-820-4.*

5.3 Storm Drain Piping

After the location and size of inlets has been determined, the rate of discharge to be carried by each drainpipe during the design storm event will be computed. The rate of discharge will be used to determine size and gradient for each pipe section. Drainpipes will be sized on the assumption that they will flow full or nearly full under the design storm discharge, but will not be placed under pressure head. All drainpipes will be designed such that velocities of flow will not be less than 2.5

feet per second when one-third or more full. Pipe sizing must be adequate to convey the runoff from the design storm within the barrel of the conduit. The Manning Equation will be used for capacity calculations. Storm drain piping will be a minimum 12 inches, refer to, Chapter 2 of *TM 5-820-3* and Chapter 3 Section 3-6 of *TM 5-820-4* for sizing requirements.

The storm drains must be designed to accommodate the storm discharge without causing flooding, or allowing flows to exit the system at unacceptable locations. The Hydraulic Gradient will be determined for the storm drain system. The following design criteria will be followed when determining the elevation along the hydraulic grade line.

- The hydraulic grade shall be 0.75 feet below the intake lip of any affected inlet, manhole cover, or any entering non-pressurized system.
- The energy grade line shall not rise above the intake lip of any affected inlet, manhole, or any entering non-pressurized system.

Manholes: Manholes shall be installed at the upper end of all storm drain lines and at all changes in grade, size, alignment and intermediate joints. Points of entry will not be more 300 feet for conduits with a minimum dimension of 30 inches or less. Inside dimensions will not be less than 2.5 feet with round covers. Construction materials, sizing, access, and spacing will be accordance with Chapter 4 Section 4-1 of *TM 5-820-4.*

Pipe Connections: Including pipe diameter increases and lateral inputs will match pipe crown elevations and be designed to minimize the hydraulic loss of the system.

Depth of Cover: Storm Drain depths should be held to a minimum consistent with limits imposed by cover requirements, other structures and utilities. Location, depth of cover, materials, and outlets will be designed to acceptable Post standards found in, Chapter 2 of *TM 5-820-3* and Appendix C of *TM 5-820-4.*

5.4 Open Channel Conveyance

Many different types of channels may be used to convey stormwater runoff as part of the drainage system. All existing natural drainage patterns should be retained if possible. Natural channels, wetlands, streams, floodplains and ponds should be preserved wherever possible. The main classifications of channels are: natural, bio-technical, vegetated grass-lined, rock-lined, and concrete. Manning's equation will be used to calculate flow velocities. Flows near at or near critical depth should be avoided when possible. Side slopes for unlined earthen channels should not exceed 1 to 3. Freeboard must be incorporated in the design of open channels to allow for future development on Post. All channels must conform to standards found in Chapter 6 of *TM 5-820-3,* and Chapter 3 Section 3-2 of *TM 5-820-4*. A brief description of channel types and their uses is provided below.

Natural Channels: Natural channels are carved or shaped by nature prior to development. They tend to have mild slopes and are relatively stable. With increased flows due to development, natural channels may experience erosion and need to be upgraded to provide adequate conveyance.

Grass-lined Channels: Grass lined channels are the most desirable type of artificial channels. Vegetative linings stabilize the channel body, control erosion of the bed, consolidate the soil mass of the bed, and help control the movement of sediment along the channel bottom. Factors that must be addressed for grass-lined channel use are: maximum shear stress of bare soils, maintenance of channel,

topsoil composition, shade issues, and flow velocities. The designer must incorporate all of these issues into the design.

Trickle Channel Linings: A small concrete pilot or trickle channel will only be used under a continuous base flow condition in which a vegetative lining would not be appropriate

Rock-lined Channels: Rock riprap, including clean rubble, is a common type of rock-lined channel. They will incorporate the use of filter fabric and allow for infiltration and exfiltration of water. As with the grass-lined channels a maintenance program must be established to prevent the growth of grass and weeds in the channels.

Concrete Channels: Concrete channels are to be used where a higher capacity channel is required for a smaller cross-sectional area. Concrete linings can be destroyed by flow under cutting the lining, channel head cutting, or the buildup of hydrostatic pressure behind the rigid surface. Filter fabric may be required to prevent soil loss through pavement cracks.

5.5 Open Channel Structures

The design of open channels usually requires the additional design of an assortment of associated structures to dissipate energy and help minimize erosion or control sediment in the channels. Following are design comments on some of the more common open channel facilities.

Drop Structures: Drop structures are design to control channel erosion by controlling the effective gradient and to provide for abrupt changes in elevations by means of a vertical drop. Each structure must be designed to resist sliding in the direction of the flow, overturning, groundwater pressures under the footing, and erosion along the toe of the structure.

Check Dams: Check dams are commonly used for energy dissipation and/or sediment control in channels. Check structures force the water upstream to flow at a higher elevation than would otherwise occur. They can be constructed using gravel or rock, gravel overlaying a sand core, timber, or gabions. There are two main subcategories of check dams: Porous and Impervious. Porous check dams are primarily used for sediment trapping and energy dissipation. Impervious check dams are primarily used for energy dissipation and water level control upstream of the dam.

Energy Dissipaters: Energy dissipaters are required in the immediate vicinity of hydraulic structures where high impact loads, erosive forces and severe scour are expected. They act as transitions, which reduce the high flow velocities that may exist under a range of flows. Energy dissipaters range from simple horizontal concrete aprons to hydraulic jump basins and wave suppressors.

5.6 Storage and Storage Facilities

Temporary storage or ponding may be necessary when post-development runoff rates exceed that of predevelopment levels or exceed the capacity of downstream drain system. Storage may be concentrated in large basin-wide facilities or distributed throughout the drainage system. Storage may be developed in parking lots, parks, recreational areas, and small lakes, ponds, and other depressions within the Post area. However, ponding will not be permitted on the primary runway under any condition. To determine the extent of ponding permissible on areas where ponding is permitted, possible damage to pavement sub-grades and base courses as a result of occasional flooding must be considered.

Storage volume shall be adequate to attenuate the post-development peak discharge rates to predevelopment discharge rates for the 2-year or 10-year design storm event depending on site location within the watershed. Routing calculations must be presented to demonstrate storage volume is adequate. Storage volume shall allow for the sediment load anticipated from the contributing areas. For storage facilities, all temporarily stored runoff shall be drained within 72 hours.

The most common and widely used storage facilities are detention and retention areas. Each serves a specific function and must be designed properly to allow for proper operation. The construction of these facilities usually requires excavation or placement of earthen embankments to obtain sufficient storage volume. Dams shall be designed using latest local practices and standards. Outlet works selected for storage facilities will include a principal spillway and emergency overflow, and must be able to accomplish the design functions of the facility. Principal spillway discharge must be released in a non-erosive manner.

Detention: Areas above the normal high water elevations of storage facilities shall slope a minimum of 2% toward the facilities to allow drainage and to prevent standing water. Careful finished grading is required to avoid upland surface depressions that may retain runoff. The bottom of a storage area shall be sloped towards the outlet to prevent standing water. A minimum 2% bottom slope is required on unpaved areas. A low flow channel can be constructed across the facility bottom from the inlet to the outlet to convey low flows and prevent standing water.

Retention: Retention facilities are conducive to establishing wetlands and open water habitats. Site-specific criteria such as depth, habitat, and bottom and shoreline geometry shall be selected to encourage establishment of the desired habitat. Plant and wildlife experts should be contacted for site-specific guidance.

Because the downstream storm sewer systems will be designed assuming storage upstream, a storage facility in the storm sewer system shall be maintained and remain functional as a storage facility site permanently.

5.7 Culverts

Drainage culverts are defined as any structure under a roadway with a clear opening of twenty feet or less measured along the centerline of the roadway. The primary purpose of culverts is to convey surface runoff from the roadway right of way. In addition to the hydraulic function, a culvert must be designed to support the embankment and roadway for traffic conveyance and protect adjacent properties from flooding hazards to the maximum extent possible.

Primary factors for final selection of any drainage structure will be based upon appropriate hydraulic principals, economy, and minimized effect on adjacent properties. Sound hydraulic design, structural design, site design, and construction practices are necessary for a culvert to function properly. The allowable headwater depth will be the primary basis for culvert sizing. Detailed culvert selection and design information can be found in Chapter 5 of *TM 5-820-3*, Chapter 3 Section 3-5 of *TM 5-820-4*, and Appendix B of *TM 5-820-4*.

Additional references for culvert selection and design:

- Federal Highway Adminstration-NHI-01-020 (Hydraulic Design of Highway Culverts) 2001

6.0 Permanent Storm Drainage System Operation and Maintenance

In order to ensure storm water runoff goals are met and maintained, Fort Campbell has implemented specific procedures for storm drainage system design. Any structure that requires periodic maintenance to function properly must be approved by the DPW prior to construction. Designers are instructed to develop an operation and maintenance plan for each structure and submit it to the DPW for approval. The plan must include a maintenance schedule, and a required materials/equipment list.

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 7

Timber Harvesting and Construction of Roads and Trails Associated with Timber Harvesting

Fire Breaks

Training Land Management

HARVESTING OF TIMBER AND CONSTRUCTION OF ROADS AND TRAILS ASSOCIATED WITH HARVESTING TIMBER

- **TENNESSEE:** RULES OF TENNESSEE DEPARTMENT OF AGRICULTURE DIVISION OF FORESTRY CHAPTER 0080-7-3 FORESTRY BEST MANAGEMENT PRACTICES USED TO CONTROL EROSION AND SEDIMENT CONTROL. NOI/NOT process not required.

- **KENTUCKY:** All Silvicultural Requirements, 401 KAR 5:026,5:029,5:030, and 5:031. Kentucky has an approved Field Guide to Best Management Practices for Timber Harvesting in Kentucky, this document can be found on their Forestry Web site at http://www.forestry.ky.gov/ NOI/NOT process not required.

FIRE BREAKS:

- Ground disturbing a fire break by removing the permanent vegetation until permanent erosion and sediment control is established requires the NOI/NOT process. Maintenance of cutting, mowing, and trimming vegetation that does not disestablish permanent erosion and sediment controls is excluded.

TRAINING LAND MANAGEMENT:

- Training lands are divided into designated unit training sites as requested or needed. Training sites are managed to control erosion and sediment control with best management practices before, during, and after completion of use. BMPs include installing rock check dams. silt fences, straw bails, spill management, unit briefings, controlling vegetation, and establishing vegetation. The NOI/NOT process is not required. The NOI/NOT process is required for construction of buildings, parking lots or other ground disturbing operations not excluded in this document.

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 8

Construction Site (Storm Water)
Assessment Checklist

FORT CAMPBELL, KY ENVIRONMENTAL DIVISION STORM WATER CONSTRUCTION ASSESSMENT CHECKLIST

Construction Site: _____Contract No._____ Project No._____

Current weather: _____ Acreage of Site: _____ _____

NO	Description	Yes	No	N/A
1	Are all erosion control devices in place and functioning?			
2	Are sediment controls in place at site perimeter and storm drain inlets?			
3	Are all sediment traps, barriers, and basins (condition of basin slopes, depth of sediment, evidence of overtopping, condition of outfall) clean and functioning properly?			
4	Are all discharge points free of any noticeable pollutant discharges?			
5	Are sediment, debris, mud and/or dust being cleaned from public roads (all traffic using ingress/egress, is gravel clean or filled with sediment)?			
6	Have stabilization measures been initiated within 7 days for areas where construction activity has ceased for more than 15 days.			
7	Are all temporary stockpiles protected from erosion and sediment runoff?			
8	Are all material handling & storage areas clean & free of spills, leaks & other deleterious materials?			
9	Are all on-site traffic routes, parking and storage of equipment and supplies/materials restricted to designated areas applicable with erosion and sediment control to prevent pollution runoff?			
10	Is construction site free of trash and other debris?			
11	Is a concrete/mortar washout being used and maintained?			
12	Is spill kit located on site near construction equipment and accessible?			
13	Does site COR certify that twice weekly inspections are being conducted and is the weekly inspection report up-to-date?			
14	Are permits, POC information & Storm Water Pollution Prevention Plan posted &/or easily accessible for inspectors/contractors?			

Intent of regulations -- deficiencies found during this reporting period are to be corrected immediately unless immediate action would cause further damage at which time you may delay until weather permitting. Add comments below and date when deficiencies will be corrected.

Comments_____

_____

Per NPDES General Permit and the Fort Campbell Storm Water Management Policy the site COR will certify that twice weekly inspections are conducted by a "qualified person". This form is used for random quality sampling.

Note: A copy of report will be forwarded to contracting agencies for those sites that continue to be in non-compliance.

_____ _____

Signature of Environmental Assessment Personnel & Phone Number **Date**

_____ _____

Signature of COR **Signature of Contractor**

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 9

Construction Site (Storm Water) Status Form

FORT CAMPBELL, KY ENVIRONMENTAL DIVISION STORM WATER CONSTRUCTION SITE STATUS

Storm Water Discharge TN Permit # _____ / Start Date (Year) _____

	Project Number	**Contractor and Contractor Number**	**Description (Include Acres, Latitude/Longitude)**	**SWPPP with Drawing Provided Y or N**	**Date NOI Issued**	**COR Contract Administrator**	**Date 95% Stabilized**	**NOT Date** (or comments, i.e., *not complete, etc…*)
1.	1T6							
2.	2T6							
3.	3T6							
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Total Acreage:		**Total Projects:**

Fort Campbell Policy for Storm Water
Erosion and Sediment Control at
Construction Projects

ATTACHMENT 10

Construction Site Final Stabilization Specifications

Construction Site Final Stabilization Specifications

1.1 Soil Preparation Prepare the soil by mowing, tilling, scarifying, smoothing, and/or a combination of these to ensure the best possible ground condition to promote the acceptance of seed, sod, or turf mats. Loosen sub-grade areas to a minimum depth of 3 inches in bare and compacted areas and a minimum depth of 2 inches in existing grass areas. The contractor shall remove stones over 1 inch in any dimension as well as sticks, roots, rubbish, and other matter. The contractor shall hand rake and blend into adjacent areas and flush with concrete curbs, walks, etc. The contractor shall aerate, fill low spots, remove bumps, and generally grade to provide drainage of surface water.

1.2 Plant Selection

1.2.1 Refer to *Table 1.1, 1.2, and 1.3* for grass mixtures.

1.2.2 *English* Rye Grass Seed is the only approved Rye Grass seed that can be used.

1.3 Stabilization in Steep Sloped Conditions: Areas which have slopes of 3:1 or greater will have either sod installed or an erosion control matting will be used.

1.3.1 Sod**:** On slopes greater than 3: 1 sod should be anchored with pins or other approved methods. Installed sod should be rolled or tamped to provide good contact between sod and soil. Irrigate sod and the top 4" of soil immediately after installation. Sod should not be cut or placed in extremely wet or dry weather. Irrigation shall be used to supplement rainfall for a minimum of 2 -3 weeks.

1.3.2 Erosion Control Blanket/Matting**:** Matting and blankets can be applied to steep slopes where erosion hazards are high and conventional seeding is likely to be too slow inproviding adequate protective cover. Concentrated flow areas, and all slopes steeper than 2 ½ :1, with a height of ten feet or greater, and cuts and fills within stream buffers, should be stabilized with the appropriate erosion control matting or blanket. Maintenance of the final cover must be considered when choosing blankets versus matting. As a minimum a single weave straw mesh geo-textile material should be used based on slope and storm water flow rate. Staples should be used to anchor permanent matting. Follow manufacturer's recommendations for stapling or staking pattern and frequency.

1.4 Seeding: Installing seed method shall be Broadcast seeding or hydro-seeding. Seeding procedure shall ensure even coverage. Seeding mixtures and application rates vary depending if the site is within the main cantonment area or in the rear training area. Seeding mixture and application rates can be found in the following tables:

Main Cantonment Area
Permanent Cover Seeding Mixtures & Application Rates

Seeding Dates	Grass Seed	%	Application Rate	Fertilizer
February 1 to July 1	Kentucky 31 Fescue	80%	16 lbs/acre	**Fertilizer Based on Soil Test Results Or 15-15-15 Fertilizer applied at a rate suggested by the manufacturer for the specified seed type**
	Korean Lespedeza	15%	5 lbs/acre	
	English Rye	5%	1 lb/acre	
June 1 to August 15	Kentucky 31 Fescue	55%	11 lbs/acre	
	English Rye	20%	2 lbs/acre	
	Korean Lespedeza	15%	5 lbs/acre	
	German Millet	10%	4 lbs/acre	
April 15 to August 15	Bermuda Grass (hulled)	70%	28 lbs/acre	
	Annual Lespedeza	30%	9 lbs/acre	
August 1 to December 1	Kentucky 31 Fescue	70%	14 lbs/acre	
	English Rye	20%	2 lbs/acre	
	White Clover	10%	1 lb/acre	
February 1 to December 1	Kentucky 31 Fescue	70%	14 lbs/acre	
	Crown Vetch	25%	4 lbs/acre	
	English Rye	5%	1 lb/acre	

Table 1.1

1.4.1 Rear Training Area Seeding Requirements

1.4.1.1 Non-native perennial grasses and plants on the noxious weed list will not be used. Fescue will be used only on road shoulders where a non-wildlife friendly species is desirable to reduce the risk of vehicle/wildlife collisions.

1.4.1.2 Areas less than 10 acres and larger areas not heavily disturbed should be re-vegetated using annual plants to hold the soil and allow the area to re vegetate - naturally. The advantages of these plants include quick germination, non-persistence wildlife benefits and good soil holding capabilities. The preferred seed mixtures for less than 10 acres can be found in Table 1.2.

1.4.1.3 Large areas, greater than 10 acres or areas that require special attention will be seeded with native grasses. Native grass species found on Fort Campbell are little bluestem, Indian grass, big bluestem, Eastern gamma grass and switch grass. The native grass seed must be certified as originating from plants native to the Big Barrens region of Kentucky, Tennessee, Missouri or Arkansas. Seed collected from a Ft Campbell genotype is preferred. The use of any other seed must be approved by Directorate of Public Works, Environmental Division, Conservation Branch. Establishing native grasses can be difficult, contact the fisheries and wildlife program biologists for technical assistance at 798-9855. Native grass mixtures can be found in Table 1.3.

Rear Training Area < 10 Acres of Disturbance
Permanent Cover Seeding Mixtures & Application Rates

September-March	Oats	60 lbs/acre	Fertilizer: per soil test or 300 lbs/acre of 15-15-15 fert.
	Wheat	60 lbs/acre	
	Annual Rye	60 lbs/acre	
	Mix with a legume below:		
	Reseeding Cowpeas	20 lbs/acre	Fertilizer in the mix
	Red Clover	10 lbs/acre	Fertilizer in the mix
	Buckwheat	25 lbs/acre	Fertilizer in the mix
	Button Clover	10 lbs/acre	Fertilizer in the mix
	Crimson Clover	10 lbs/acre	Fertilizer in the mix
April - August	*Choose a Millet or Milo:*		
	Pearl Millet	10 lbs/acre	Fertilizer: per soil test or 300 lbs/acre of 15-15-15 fertilizer
	German Foxtail Millet	20 lbs/acre	
	Browntop Millet	25 lbs/acre	
	Japanese Millet	20 lbs/acre	
	Proso Millet	20 lbs/acre	
	Milo (grain Sorghum)	15 lbs/acre	
	Mix with a legume below:		
	Reseeding Cowpeas	20 lbs/acre	Fertilizer in the mix
	Red Clover	10 lbs/acre	Fertilizer in the mix
	Buckwheat	25 lbs/acre	Fertilizer in the mix
	Button Clover	10 lbs/acre	Fertilizer in the mix
	Crimson Clover	10 lbs/acre	Fertilizer in the mix

Table 1.2

Rear Training Area > 10 Acres of Disturbance
Permanent Cover Seeding Mixtures & Application Rates

Little Bluestem	5-7 lbs pure live seed (pls)/acre	NO FERTILIZER REQUIRED
Big Bluestem	5-7 lbs pure live seed (pls)/acre	
Indian Grass	7 lbs pure live seed (pls)/acre	
Easter gamagrass	7 lbs pure live seed (pls)/acre	
Switchgrass	5-7 lbs pure live seed (pls)/acre	

Table 1.3

1.4.2 Watering shall be started immediately after completing the seeding of an area. Water shall be applied to supplement rainfall at a rate sufficient to ensure moist soil conditions to a minimum 1 inch depth. Runoff and puddling shall be prevented. Watering trucks shall not be driven over turf areas, unless otherwise directed. Watering of other adjacent areas or plant material shall be prevented.

1.5 Mulch Mulch is required for all permanent vegetation applications. Mulch that is applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated:

1.5.1 When using permanent erosion control blankets or block sod, mulch is not required.

1.5.2 Dry straw or hay of good quality shall be used which is free of weed seeds. Dry straw will be applied at the rate of 2 tons per acre. Dry hay will be applied at a rate of 2.5 tons per acre.

1.5.3 Straw or hay mulch will be spread uniformly immediately after seeding and/or planting. The mulch may be spread by blower type spreading equipment, other spreading equipment or by hand.

1.5.4 Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be installed at the rate of 500 pounds per acre. Dry straw or hay shall be applied after hydraulic seeding.

1.5.5 One thousand pounds per acre of wood cellulose or wood pulp fiber, which includes a tackifier to adhere the seed mixture, shall be used with hydraulic seeding on slopes ¾: 1 or greater

1.6 Rock

1.6.1 Riprap rock will be used on slopes and areas where conditions may not allow vegetation to grow.

1.6.2 Riprap applications for channel or slope stabilization should be designed by a professional familiar with the design of storm water conveyance structures.

1.6.3 Riprap is usually solid durable limestone rock, which is generally resistant to erosion and to normal stream chemistry. Riprap material that is of questionable origin should be given a sodium sulfate soundness test to determine its durability.

1.6.4 Different classes of machines riprap are shown in Table 2, other classes of riprap are shown in Table 3.

Machine Riprap Specifications

Class A-1	Class A-3	Class B	Class C
2” to 15” diameter (0.5 to 169 lbs) dumped	2” to 6” diameter (0.5 to 11 lbs) dumped	3” to 27” diameter (1.5 to 985 lbs) dumped	5” to 36” diameter (6 to 2335 lbs) dumped
20% by weight shall be at least 4” size (3 lbs) Typical thickness is 18” with surface tolerance of 3”	20% by weight shall be at least 4” size (3 lbs) Typical thickness is 12” with surface tolerance of 2”	20% by weight shall be at least 6” size (11 lbs) Typical thickness is 30” with surface tolerance of 4”	20% by weight shall be at least 9” size (36 lbs) Typical thickness is 42” with surface tolerance of 6”

Table 2

Non-Machined Riprap Specifications

Rubble-Stone (Plain)	**Rubble-Stone (Grouted)**	**Concrete Blocks**	**Sacked Riprap (Sand Cement)**
Min 2” diameter (min 0.5 lbs) Placed by hand	Min 2” diameter (min 0.5 lbs) Placed by hand	Rectangular shapes Placed by hand	Approx 1 CUFT (approx 100lbs) Placed by hand
80% of weight shall be at least 10” in any dimension (prefer rectangular) Remainder if 2” to 4” size for chinking	80% of weight shall be at least 10” in any dimension (prefer rectangular) Remainder if 2” to 4” size for chinking	Class A Concrete with 3000 psi 28-day strength Various thickness from 4” upwards	Sacks should be cotton or jute cloth that retains sand and dry cement mix. Mix 1 bag cement (94 lbs) with 5 CUFT of sand
Typical thickness is 12” with surface tolerance of 2”	Typical thickness is 12” with surface tolerance of 2”	Design and install per manufacturers recommendations	Typical thickness is 10” with surface tolerance of 2”

Table 3

1.7 Rock Check Dams

1.7.1 Rock check dams are constructed from large aggregate (clean of fines) such as TDOT #1 or #2 with stone sizes from 2 to 15 inches. These structures are used from drainage areas up to 5 acres. An upstream layer of smaller aggregate may be used for filtering. Rock can be placed by hand or by mechanical methods to achieve complete ditch or swale coverage.

1.7.2 Rock check dams should be keyed into the swale or channel bottom at, typically, a depth of 6 inches. Advantages of keying into the swale or channel bottom are that the check dam will be more stable and less likely to wash out.

1.7.3 Sediment should be removed before it reaches a depth of one half the original dam height. Maintenance needs identified in inspections or by other means should be accomplished before the next storm event if possible but in no case more than seven days after the need is identified.

1.7.4 If the area is to be mowed, check dams should be removed once final stabilization has occurred. Otherwise, check dams may remain in place permanently. After removal, the disturbed area should be seeded and mulched immediately.

1.8 Permanent Stabilizing Drainage Ditches

1.8.1 After construction work is complete all drainage ditches shall be permanently covered and stabilized with vegetation or other engineering controls such a rock.

1.8.2 Drainage Ditches with gently sloping bottoms (less than 3%) shall be stabilized with grass seeding or erosion control blankets. Moderately sloping ditches (3%-6% slopes) require turf reinforcement matting and may include rock for soils are that are silty. Steeply sloping ditches (greater than 10%) will require heavier armoring with concrete, riprap, gabion baskets, retaining walls or other engineered controls or products.

1.8.3 Drainage ditches may require temporary silt check dams to capture sediment and reduce ditch bottom down-cutting to allow permanent vegetation to stabilize. Silt dikes or dams shall be made of rock, stone-filled bags, fiber rolls or brush.

1.8.4 Silt fencing and straw bales are **not** approved for permanent use as silt check dams for drainage ditches that carry flowing water. Do not place silt checks in creeks or streams. Sediment must be intercepted before it reaches streams, lakes, rivers, or wetlands.

1.8.5 Stabilize ditches and install silt controls before excavating, filling, or grading uphill areas. Inspect, repair, and clean out sediment from upstream side of silt controls after each rainfall of ½ inch or more. Remove temporary silt controls after site is stabilized when 95% vegetation has been achieved and approved by government contracting agency. Filter fabric will be placed under all rock ditch check dams during installation to prevent rock from sinking for easy removal.

1.9 Contractor Warranty to ensure 95% stabilization. Each project construction warranty shall ensure controls are in place after completion of construction to establish the site to a minimum of 95% stabilization.